UNITED STATES
SECURITIES AND EXCHANGE COMMISSION
WASHINGTON, D.C. 20549

FORM 8-K

CURRENT REPORT
Pursuant to Section 13 or 15(d)
of the Securities Exchange Act of 1934

Date of Report (Date of earliest event reported): April 30, 2020

ACELRX PHARMACEUTICALS, INC.
(Exact name of registrant as specified in its charter)

Delaware	**001-35068**	**41-2193603**
(State of incorporation)	**(Commission File No.)**	**(IRS Employer Identification No.)**

351 Galveston Drive
Redwood City, CA 94063
(Address of principal executive offices and zip code)

Registrant's telephone number, including area code: (650) 216-3500

Check the appropriate box below if the Form 8-K filing is intended to simultaneously satisfy the filing obligation of the registrant under any of the following provisions (see General Instruction A.2. below):

☒ Written communications pursuant to Rule 425 under the Securities Act (17 CFR 230.425)

☐ Soliciting material pursuant to Rule 14a-12 under the Exchange Act (17 CFR 240.14a-12)

☐ Pre-commencement communications pursuant to Rule 14d-2(b) under the Exchange Act (17 CFR 240.14d-2(b))

☐ Pre-commencement communications pursuant to Rule 13e-4(c) under the Exchange Act (17 CFR 240.13e-4(c))

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

Title of each class	Trading Symbol(s)	Name of each exchange on which registered
Common Stock, $0.001 par value	**ACRX**	**The Nasdaq Global Market**

Indicate by check mark whether the registrant is an emerging growth company as defined in Rule 405 of the Securities Act of 1933 (§230.405 of this chapter) or Rule 12b-2 of the Securities Exchange Act of 1934 (§240.12b-2 of this chapter).

Emerging growth company ☐

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

Explanatory Note

On March 16, 2020, AcelRx Pharmaceuticals, Inc. (the " *Company* ") filed a Current Report on Form 8-K (the " *Original Form 8-K* "), reporting, among other items, that on March 15, 2020, the Company, Tetraphase Pharmaceuticals, Inc., a Delaware corporation (" *Tetraphase* ") and Consolidation Merger Sub, Inc., a Delaware corporation and an indirect wholly-owned subsidiary of the Company ("Merger Sub"), entered into an Agreement and Plan of Merger (the "Merger Agreement"), pursuant to which, among other things, Merger Sub will be merged with and into Tetraphase (the "Merger"), with Tetraphase continuing as the surviving corporation and an indirect wholly-owned subsidiary of the Company. The Company also reported in the Original Form 8-K that it planned to file with the U.S. Securities and Exchange Commission (the "SEC") a registration statement on Form S-4 (the "Form S-4") in connection with its issuance of AcelRx Common Stock in connection with the Merger. As of the date hereof, AcelRx has filed the Form S-4, as amended, which contains, among other things (i) the audited financial statements of Tetraphase and (ii) unaudited pro forma condensed combined financial information that presents the combination of the historical financial statements of the Company and the historical financial statements of Tetraphase, after giving effect to the Merger. This Current Report on Form 8-K is being filed to include the information described in (i) and (ii) above from the Form S-4, as amended, so that it is incorporated by reference into the Company's effective registration statements, as well as to report the information regarding the Company's business as disclosed in Items 2.02 and 8.01 below.

Item 2.02 Results of Operations and Financial Condition

On April 30, 2020, the Company issued a press release announcing a business update, which included disclosures regarding the following estimated operating results: an estimated $52.7 million of cash, cash equivalents and short-term investments as of March 31, 2020, and estimated total revenues of $0.4 million and estimated operating expense (SG&A and R&D) of $14.7 million expected for the quarter ended March 31, 2020. A copy of the press release is attached hereto as Exhibit 99.1.

The Company has not yet completed its financial close process for the quarter ended March 31, 2020 and these estimates for total revenues, SG&A and R&D expenses and cash, cash equivalents and short-term investments are based on preliminary estimates of the Company's financial results that it expects to report for the applicable periods. These estimates are subject to change upon completion of the Company's financial closing procedures. The Company's independent registered public accounting firm, OUM & Co. LLP, has not audited, reviewed, or compiled these estimates and, accordingly, does not express an opinion on, or provided any other form of assurance with respect to, these preliminary estimates. These estimates are not a comprehensive statement of the Company's financial results for the quarter ended March 31, 2020 and its actual results may differ materially from these estimates as a result of the completion of the Company's financial closing procedures, final adjustments and other developments arising between now and the time that our financial results for this period are finalized.

Item 8.01 Other Events

The information contained in Item 2.02 above and the press release are incorporated herein by reference.

Item 9.01 Financial Statements and Exhibits

(a) Financial Statements of Business Acquired

The audited financial statements of Tetraphase as of December 31, 2019 and 2018 are filed herewith as Exhibit 99.2 and are incorporated herein by reference. The consent of Ernst & Young LLP, Tetraphase's independent registered public accounting firm, is attached herewith as Exhibit 23.1.

(b) Pro Forma Financial Information

The unaudited pro forma condensed combined financial information presents the combination of the historical financial statements of the Company and the historical financial statements of Tetraphase, after giving effect to the Merger. The unaudited pro forma condensed combined financial information is intended to reflect, with

respect to the unaudited pro forma condensed combined balance sheet, the Merger as if it had occurred on December 31, 2019, and with respect to the unaudited condensed combined statement of operations, the Merger as if it had occurred on January 1, 2019. The unaudited pro forma condensed combined financial information is filed herewith as Exhibit 99.3, and is incorporated herein by reference.

(d) Exhibits

Exhibit No.	Description
23.1	Consent of Ernst & Young LLP, Tetraphase Pharmaceuticals, Inc.'s independent registered public accounting firm
99.1	Press Release dated April 30, 2020
99.2	Audited financial statements of Tetraphase Pharmaceuticals, Inc. as of December 31, 2019 and 2018
99.3	Unaudited pro forma condensed combined financial information of AcelRx Pharmaceuticals, Inc. as of December 31, 2019

Forward-Looking Statements

This Current Report on Form 8-K contains forward-looking statements, including, but not limited to, statements related to the Company's cash position as of March 31, 2020, anticipated results of operations for the quarter ended March 31, 2020, anticipated changes in the business environment in which the Company operates and in the Company's future prospects or results, statements relating to the Company's intentions, plans, hopes, beliefs, anticipations, expectations or predictions of the future, or statements relating to the consummation of the Merger and the other transactions described above and the potential benefits of such transactions. These statements may be identified by the use of forward-looking terminology such as "believes," "expects," "anticipates," "may," "will," "should," "seeks," "approximately," "intends," "plans," "estimates," or the negative of these words or other comparable terminology. These forward-looking statements involve risks and uncertainties that could cause actual results to differ materially from those projected, anticipated or implied by such statements, including the risk that the Company may not be able to close the acquisition of Tetraphase or achieve the expected benefits and cost synergies from the transactions, that there may be changes in estimated cash position based on the completion of the Company's financial statement closing procedures and the review by the Company's independent registered public accounting firm of such financial statements, that potential sales volumes to the Department of Defense may not materialize, or that the impacts the Company is experiencing from the ongoing COVID-19 pandemic may be prolonged or exacerbated. In addition, such risks and uncertainties may include, but are not limited to, those described in the Company's annual, quarterly and current reports (i.e., Form 10-K, Form 10-Q and Form 8-K) as filed or furnished with the SEC. You are cautioned not to place undue reliance on any such forward-looking statements, which speak only as of the date such statements were first made. The Company's SEC reports are available at www.acelrx.com under the "Investors" tab. Except to the extent required by law, the Company undertakes no obligation to publicly release the result of any revisions to these forward-looking statements to reflect events or circumstances after the date hereof, or to reflect the occurrence of unanticipated events.

Additional Information and Where to Find It

In connection with the proposed transaction between the Company and Tetraphase, the Company has filed with the SEC a registration statement on Form S-4 (No. 333-237584) (the "Registration Statement") containing a document constituting a prospectus of the Company and a proxy statement of Tetraphase. The Registration Statement was declared effective by the SEC on April 24, 2020, and Tetraphase mailed the definitive proxy statement/prospectus to stockholder of Tetraphase on or about April 28, 2020. The Company and Tetraphase also plan to file other relevant documents with the SEC regarding the proposed transactions. INVESTORS AND SECURITY HOLDERS ARE URGED TO READ THE DEFINITIVE PROXY STATEMENT/PROSPECTUS AND OTHER RELEVANT DOCUMENTS FILED WITH THE SEC CAREFULLY AND IN THEIR ENTIRETY WHEN THEY BECOME AVAILABLE BECAUSE THEY WILL CONTAIN IMPORTANT INFORMATION. Investors and security holders will be able to obtain free copies of the Registration Statement and the definitive proxy statement/prospectus and other relevant documents filed or that will be filed by the Company or Tetraphase with the SEC through the website maintained by the SEC at http://www.sec.gov. Copies of the documents filed with the SEC by the Company will be available free of charge within the Investors section of the Company's website at http://ir.acelrx.com. Copies of the documents filed with the SEC by Tetraphase will be available free of charge within the Investors section of Tetraphase's website at https://ir.tphase.com/investor-relations.

Participants in the Solicitation

Each of the Company and Tetraphase and their respective directors and executive officers may be deemed to be participants in the solicitation of proxies from Tetraphase stockholders in connection with the proposed transaction. Information about the Company's directors and executive officers is included in the definitive proxy statement for its 2020 annual meeting of stockholders, which was filed with the SEC on April 24, 2020. Information about Tetraphase's directors and executive officers is included in Tetraphase's Annual Report on Form 10-K for the fiscal year ended December 31, 2019, which was filed with the SEC on March 12, 2020. Other information regarding the participants in the solicitation of proxies in connection with the proposed transaction and a description of their direct and indirect interests, by security holdings or otherwise, will be contained in the definitive proxy statement/prospectus filed with the SEC on April 24, 2020. When available, investors may obtain free copies of these documents from the Company or Tetraphase as indicated above.

No Offer or Solicitation

This communication is being made in respect of the proposed transaction involving the Company and Tetraphase. This communication does not constitute an offer to sell or the solicitation of an offer to buy any securities nor a solicitation of any vote or approval with respect to the proposed transaction or otherwise. No offering of securities shall be made except by means of a prospectus meeting the requirements of Section 10 of the Securities Act, as amended, and otherwise in accordance with applicable law.

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 hereunto duly authorized.

Date: April 30, 2020

ACELRX PHARMACEUTICALS, INC.

By: /s/ Raffi Asadorian
Raffi Asadorian
Chief Financial Officer

Exhibit 23.1

Consent of Independent Registered Public Accounting Firm

We consent to the incorporation by reference in the Registration Statement (No. 333-218506) on Form S-3 of AcelRx Pharmaceuticals, Inc. of our report dated March 11, 2020, relating to the consolidated financial statements of Tetraphase Pharmaceuticals, Inc. as of and for the years ended December 31, 2019 and 2018 appearing in this Current Report on Form 8-K of AcelRx Pharmaceuticals, Inc.

/s/ Ernst & Young LLP

Boston, Massachusetts
April 30, 2020

Exhibit 99.1

AcelRx Announces DSUVIA ® Milestone C Approval and Provides Business Update

Milestone C decision clears the way for the military to begin procuring DSUVIA

REDWOOD CITY, Calif., April 30, 2020 – AcelRx Pharmaceuticals, Inc. (NASDAQ: ACRX) (AcelRx), a specialty pharmaceutical company focused on the development and commercialization of innovative therapies for use in healthcare institutions, today announced that DSUVIA achieved Milestone C approval, a decision that clears the path for DSUVIA to be included in military sets, kits and outfits (SKOs).

“After many years of development and collaboration with the U.S. Army to create a sublingual alternative to injectable opioids for acute pain management on the battlefield, we are excited to now have approval to fulfill an unmet need for our military,” said Vince Angotti, CEO of AcelRx Pharmaceuticals. “The AcelRx and U.S. Army teams have worked diligently to reach this affirmative Milestone C decision. We expect the next phase of our collaboration with the Department of Defense will make DSUVIA widely available throughout all branches of the military, and we look forward to significant orders for DSUVIA later this year and beyond.”

Other business updates

- AcelRx’s registration statement on Form S-4 related to the acquisition of Tetraphase Pharmaceuticals, Inc. (“Tetraphase”) was declared effective by the Securities and Exchange Commission on April 24, 2020. AcelRx expects to close the acquisition following the special meeting of Tetraphase’s stockholders, which is scheduled to be held on June 8, 2020.
- The AcelRx and Tetraphase commercial and medical affairs teams have been fully trained on each company’s respective product and co-promotion efforts have been initiated.
- In response to the COVID-19 pandemic, hospitals and ambulatory surgery centers have postponed elective surgeries and restricted in-person meetings with pharmaceutical company personnel. Promotional and educational meetings by our commercial and medical affairs teams are therefore being conducted virtually, if available, until access is again granted. As a result, DSUVIA sales have been adversely affected and the previously announced year-end 2020 REMS-certified facilities and formulary approvals goals will be re-evaluated once the COVID-19 restrictions are lifted and there is greater visibility into healthcare facility access.
- Preliminary first quarter 2020 operating expenses (SG&A and R&D) are expected to be $14.7 million and include increased legal and professional costs incurred in connection with the pending Tetraphase acquisition. AcelRx expects quarterly combined R&D and SG&A expense for each of the remaining quarters of 2020, without taking into account the closing of the Tetraphase acquisition, to range from $10 million to $11.0 million, which is reduced from the previous guidance range of $10

million to $13 million. Excluding an estimated $1.0 million to $1.5 million of non-cash stock-based compensation per quarter, the quarterly operating expense is expected to be in the $9.0 million to $9.5 million range. See “Non-GAAP Financial Measures” below for a discussion of quarterly operating expense, excluding non-cash costs, described above.

- Preliminary first quarter 2020 revenues are expected to be $0.4 million.
- Preliminary cash, cash equivalents and short-term investments are expected to be $52.7 million as of March 31, 2020.

Mr. Angotti continued, “Our sales team has done a great job preparing for co-promotion efforts and transitioning to virtual meetings with physicians when available, but the COVID-19 pandemic has had a broad impact, including the delay of elective surgeries and reduction in number of ER visits. While we expect to see some DSUVIA sales impact and some of the planned 2020 REMS certifications and formulary approvals pushed to later in the year or into next year, our broader commercial goals remain the same. We are focused on the completion of the Tetraphase acquisition, which we continue to see providing excellent synergies, and look forward to providing further updates in the future.”

The information above related to the Company’s expected operating results for the three months ended and as of March 31, 2020, including revenue, cash operating expenses and cash, cash equivalents and short-term investments, is preliminary, has not been audited or reviewed and is subject to change upon completion of the review of the Company’s financial statements as of and for the three months ended March 31, 2020. Fiscal year 2020 financial guidance is based on the Company’s current expectations and are forward-looking statements. Actual results could differ materially depending on market conditions and the factors set forth under the “Forward-Looking Statements” heading below.

About DSUVIA (sufentanil sublingual tablet), 30 mcg

DSUVIA ® , known as DZUVEO ™ in Europe, approved by the FDA in November 2018, is indicated for use in adults in certified medically supervised healthcare settings, such as hospitals, surgical centers, and emergency departments, for the management of acute pain severe enough to require an opioid analgesic, and for which alternative treatments are inadequate. DSUVIA was designed to provide rapid analgesia via a non-invasive route and to eliminate dosing errors associated with intravenous (IV) administration. DSUVIA is a single-strength solid dosage form administered sublingually via a single-dose applicator (SDA) by healthcare professionals. Sufentanil is an opioid analgesic previously only marketed for IV and epidural anesthesia and analgesia. The sufentanil pharmacokinetic profile when delivered sublingually avoids the high peak plasma levels and short duration of action observed with IV administration. The European Commission approved DZUVEO for marketing in Europe in June 2018 and the Company is currently in discussions with potential European marketing partners.

This release is intended for investors only. For more information, including important safety information and black box warning for DSUVIA, please visit www.DSUVIA.com .

About AcelRx Pharmaceuticals, Inc.

AcelRx Pharmaceuticals, Inc. is a specialty pharmaceutical company focused on the development and commercialization of innovative therapies for use in medically supervised settings. AcelRx’s proprietary, non-invasive sublingual formulation technology delivers sufentanil with consistent pharmacokinetic profiles. The Company has one approved product in the U.S., DSUVIA ® (sufentanil sublingual tablet, 30 mcg), known as DZUVEO ™ in Europe, indicated for the management of acute pain severe enough to require an opioid analgesic for adult patients in certified medically supervised healthcare settings, and one product candidate, Zalviso ® (sufentanil sublingual tablet system, SST system, 15 mcg), an investigational product in the U.S., is being developed as an innovatively designed patient-controlled analgesia (PCA) system for reduction of moderate-to-severe acute pain in medically supervised settings. DZUVEO and Zalviso are both approved products in Europe.

For additional information about AcelRx, please visit www.acelrx.com .

Non-GAAP Financial Measures

To supplement AcelRx's financial results and guidance presented in accordance with U.S. generally accepted accounting principles (GAAP), the Company uses certain non-GAAP financial measures in this press release, in particular, excluding stock-based compensation expense from its operating expenses. The Company believes that these non-GAAP financial measures provide useful supplementary information to, and facilitate additional analysis by, investors and analysts. In particular, the Company believes that these non-GAAP financial measures, when considered together with the Company's financial information prepared in accordance with GAAP, can enhance investors' and analysts' ability to meaningfully compare the Company's results from period to period and to its forward-looking guidance. In addition, these types of non-GAAP financial measures are regularly used by investors and analysts to model and track the Company's financial performance. AcelRx's management also regularly uses these non-GAAP financial measures internally to understand, manage and evaluate the Company's business and to make operating decisions. Non-GAAP financial measures are not meant to be considered in isolation or as a substitute for comparable GAAP measures and should be read in conjunction with AcelRx's consolidated financial statements prepared in accordance with GAAP. The non-GAAP financial measures in this press release have limits in their usefulness to investors and may be calculated differently from, and therefore may not be directly comparable to, similarly titled measures used by other companies.

Forward-Looking Statements

This press release contains forward-looking statements, including, but not limited to, statements related to anticipated procurement by the military, the expected closing and timing of the Tetraphase acquisition, revenues, operating expenses, cash, cash equivalents and short-term investments the Company expects to report for the three months ended and as of March 31, 2020, quarterly operating expense guidance for the remainder of 2020, and ongoing effects and anticipated impacts to the Company's business as a result of the COVID-19 pandemic. These and any other forward-looking statements are made pursuant to the safe harbor provisions of the Private Securities Litigation Reform Act of 1995. These statements may be identified by the use of forward-looking terminology such as "believes," "expects," "anticipates," "may," "will," "should," "seeks," "approximately," "intends," "plans," "estimates," or the negative of these words or other comparable terminology. These forward-looking statements involve risks and uncertainties that could cause actual results to differ materially from those projected, anticipated or implied by such statements, including the uncertainty surrounding the continuation of shelter-in-place orders and related restrictions on access to our customers due to COVID-19, the uncertainty of longer-term economic impacts from COVID-19, our ability to close and achieve the anticipated benefits from the Tetraphase acquisition, and uncertainty as to the timing and volume of orders expected from the U.S. military. In addition, such risks and uncertainties may include, but are not limited to, those described in AcelRx's annual, quarterly and current reports (i.e., Form 10-K, Form 10-Q and Form 8-K) as filed or furnished with the Securities and Exchange Commission (SEC). You are cautioned not to place undue reliance on any such forward-looking statements, which speak only as of the date such statements were first made. AcelRx's SEC reports are available at www.acelrx.com under the "Investors" tab. Except to the extent required by law, AcelRx undertakes no obligation to publicly release the result of any revisions to these forward-looking statements to reflect events or circumstances after the date hereof, or to reflect the occurrence of unanticipated events.

Additional Information and Where to Find It

In connection with the proposed transaction between AcelRx and Tetraphase, AcelRx filed with the SEC a registration statement on Form S-4 (No. 333-237584) (the "Registration Statement") containing a document constituting a prospectus of AcelRx and a proxy statement of Tetraphase. The Registration Statement was declared effective by the SEC on April 24, 2020, and Tetraphase mailed the definitive

proxy statement/prospectus to stockholders of Tetraphase on or about April 28, 2020. AcelRx and Tetraphase also plan to file other relevant documents with the SEC regarding the transaction. INVESTORS AND SECURITY HOLDERS ARE URGED TO READ THE DEFINITIVE PROXY STATEMENT/PROSPECTUS AND OTHER RELEVANT DOCUMENTS FILED WITH THE SEC CAREFULLY AND IN THEIR ENTIRETY WHEN THEY BECOME AVAILABLE BECAUSE THEY WILL CONTAIN IMPORTANT INFORMATION. Investors and security holders will be able to obtain free copies of the Registration Statement and the definitive proxy statement/prospectus and other relevant documents filed or that will be filed by AcelRx or Tetraphase with the SEC through the website maintained by the SEC at http://www.sec.gov. Copies of the documents filed with the SEC by AcelRx will be available free of charge within the Investors section of AcelRx's website at http://ir.acelrx.com. Copies of the documents filed with the SEC by Tetraphase will be available free of charge within the Investors section of Tetraphase's website at https://ir.tphase.com/investor-relations.

Participants in the Solicitation

Each of AcelRx and Tetraphase and their respective directors and executive officers may be deemed to be participants in the solicitation of proxies from Tetraphase stockholders in connection with the proposed transaction. Information about AcelRx's directors and executive officers is included in the definitive proxy statement for its 2020 annual meeting of stockholders, which was filed with the SEC on April 24, 2020. Information about Tetraphase's directors and executive officers is included in Tetraphase's Annual Report on Form 10-K for the fiscal year ended December 31, 2019, which was filed with the SEC on March 12, 2020. Other information regarding the participants in the solicitation of proxies in connection with the proposed transaction and a description of their direct and indirect interests, by security holdings or otherwise, is contained in the definitive proxy statement/prospectus filed with the SEC on April 24, 2020. When available, investors may obtain free copies of these documents from AcelRx or Tetraphase as indicated above.

No Offer or Solicitation

This communication is being made in respect of the proposed transaction involving AcelRx and Tetraphase. This communication does not constitute an offer to sell or the solicitation of an offer to buy any securities nor a solicitation of any vote or approval with respect to the proposed transaction or otherwise. No offering of securities shall be made except by means of a prospectus meeting the requirements of Section 10 of the Securities Act of 1933, as amended, and otherwise in accordance with applicable law.

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Exhibit 99 . 2

Tetraphase Pharmaceuticals, Inc.
Consolidated Financial Statements
December 31, 2019 and 2018

TETRAPHASE PHARMACEUTICALS, INC.
INDEX TO CONSOLIDATED FINANCIAL STATEMENTS

TETRAPHASE PHARMACEUTICALS, INC.
Report of Independent Registered Public Accounting Firm

To the Stockholders and the Board of Directors of Tetraphase Pharmaceuticals, Inc.

Opinion on the Financial Statements

We have audited the accompanying consolidated balance sheets of Tetraphase Pharmaceuticals, Inc. (the Company) as of December 31, 2019 and 2018 , the related consolidated statements of operations and comprehensive loss, stockholders ' equity and cash flows for each of the two years in the period ended December 31, 2019, and the related notes (collectively referred to as the " consolidated financial statements "). In our opinion, the consolidated financial statements present fairly, in all material respects, the financial position of the Company as of December 31, 2019 and 2018 , and the results of its operations and its cash flows for each of the two years in the period ended December 31, 2019, in conformity with U.S. generally accepted accounting principles.

The Company ' s Ability to Continue as a Going Concern

The accompanying consolidated financial statements have been prepared assuming that the Company will continue as a going concern. As discussed in Note 1 to the consolidated financial statements, the Company will require additional capital to fund its current operating plan and has stated that substantial doubt exists about the Company ' s ability to continue as a going concern. Management ' s evaluation of the events and conditions and management ' s plans regarding these matters are also described in Note 1 . The consolidated financial statements do not include any adjustments that might result from the outcome of this uncertainty.

Adoption of New Accounting Standard

As discussed in Note 2 to the consolidated financial statements, the Company changed its method of accounting for leases in 2019 as a result of the adoption of Accounting Standards Update (ASU) No. 2016 - 02 , Leases (Topic 842), and the related amendments.

Basis for Opinion

These financial statements are the responsibility of the Company ' s management. Our responsibility is to express an opinion on the Company ' s financial statements based on our audits. We are a public accounting firm registered with the Public Company Accounting Oversight Board (United States) (PCAOB) and are required to be independent with respect to the Company in accordance with the U.S. federal securities laws and the applicable rules and regulations of the Securities and Exchange Commission and the PCAOB.

We conducted our audits in accordance with the standards of the PCAOB. Those standards require that we plan and perform the audit to obtain reasonable assurance about whether the financial statements are free of material misstatement, whether due to error or fraud. The Company is not required to have, nor were we engaged to perform, an audit of its internal control over financial reporting. As part of our audits we are required to obtain an understanding of internal control over financial reporting but not for the purpose of expressing an opinion on the effectiveness of the Company ' s internal control over financial reporting. Accordingly, we express no such opinion.

Our audits included performing procedures to assess the risks of material misstatement of the financial statements, whether due to error or fraud, and performing procedures that respond to those risks. Such procedures included examining, on a test basis, evidence regarding the amounts and disclosures in the financial statements. Our audits also included evaluating the accounting principles used and significant estimates made by management, as well as evaluating the overall presentation of the financial statements. We believe that our audits provide a reasonable basis for our opinion.

/s/ Ernst & Young LLP

We have served as the Company ' s auditor since 2007 .
Boston, Massachusetts
March 11, 2020

Tetraphase Pharmaceuticals, Inc.
Consolidated Balance Sheets

(In thousands, except par value amounts)

	December 31, 2019	December 31, 2018
Assets		
Current assets:		
Cash and cash equivalents	$ 21,239	$ 107,776
Accounts receivable, net	1,503	2,274
Contract asset	—	3,000
Assets held for sale	53	—
Inventory	1,595	748
Prepaid expenses and other current assets	2,103	2,674
Total current assets	26,493	116,472
Property and equipment, net	98	1,121
Intangible assets, net	4,259	4,652
Operating lease right-of-use assets	4,836	—
Restricted cash	699	699
Total assets	$ 36,385	$ 122,944
Liabilities and stockholders' equity		
Current liabilities:		
Accounts payable	$ 2,429	$ 3,210
Accrued expenses and other	5,794	11,761
Operating lease liabilities	1,547	—
Total current liabilities	9,770	14,971
Long-term operating lease liabilities	3,448	—
Loan payable	—	28,291
Commitments and contingencies (Note 11)		
Stockholders' equity:		
Preferred stock, par value $ 0.001 per share; 5,000 shares authorized; no shares issued and outstanding	—	—
Common stock, par value $ 0.001 per share; 125,000 shares authorized; 3,466 and 2,684 shares issued and outstanding at December 31, 2019 and 2018 , respectively	3	3
Additional paid-in capital	627,291	613,721
Accumulated deficit	(604,127)	(534,042)
Total stockholders' equity	23,167	79,682
Total liabilities and stockholders' equity	$ 36,385	$ 122,944

See accompanying notes to consolidated financial statements.

Tetraphase Pharmaceuticals, Inc.
Consolidated Statements of Operations and Comprehensive Loss

(In thousands, except per share data)

	Years Ended December 31,	
	2019	**2018**
Revenue:		
Product revenue, net	$ 3,575	$ 178
License and collaboration revenue	2,000	12,677
Government revenue	1,801	6,049
Total revenue	7,376	18,904
Expenses:		
Cost of revenue - product sales	2,687	130
Cost of revenue - intangible asset amortization	393	98
Research and development	22,785	54,879
Selling, general and administrative	49,043	37,078
Total expenses	74,908	92,185
Loss from operations	(67,532)	(73,281)
Other income and expenses		
Loss on extinguishment of debt	(1,568)	-
Other income	333	-
Interest income	1,262	1,747
Interest expense	(2,580)	(624)
Net loss	$ (70,085)	$ (72,158)
Net loss per share-basic and diluted	$ (22.85)	$ (27.48)
Weighted-average common shares used in net loss per share-basic and diluted	3,067	2,626
Comprehensive loss	$ (70,085)	$ (72,158)

See accompanying notes to consolidated financial statements.

Tetraphase Pharmaceuticals, Inc.
Consolidated Statements of Stockholders ' Equity

(In thousand s)

	Common Shares		Additional Paid-In Capital	Accumulated Deficit	Total Stockholders' Equity (Deficit)
	Shares	Amount			
Balance at December 31, 2017	2,573	$ 3	$ 592,291	$ (461,884)	$ 130,410
Issuance of common stock under stock plans	9	—	271	—	271
Issuance of common stock under "at-the-market" equity offering sales agreement less issuance costs	98	—	7,039	—	7,039
Issuance of warrants to purchase common stock	—	—	803	—	803
Issuance of common stock under employee stock purchase plan	4	—	188	—	188
Stock-based compensation expense	—	—	13,129	—	13,129
Net loss	—	—	—	(72,158)	(72,158)
Balance at December 31, 2018	2,684	$ 3	$ 613,721	$ (534,042)	$ 79,682
Issuance of common stock, under stock plans	68	—	—	—	-
Issuance of common stock and prefunded warrants under registered direct offering, less issuance costs	300	—	7,066	—	7,066
Issuance of common stock from warrant exercise	400	—	4	—	4
Issuance of common stock under employee stock purchase plan	14	—	65	—	65
Stock-based compensation expense	—	—	6,435	—	6,435
Net loss	—	—	—	(70,085)	(70,085)
Balance at December 31, 2019	3,466	$ 3	$ 627,291	$ (604,127)	$ 23,167

See accompanying notes to consolidated financial statements.

Tetraphase Pharmaceuticals, Inc.
Consolidated Statements of Cash Flows

(In thousand s)

	Years Ended December 31,	
	2019	2018
Operating activities		
Net loss	$ (70,085)	$ (72,158)
Adjustments to reconcile net loss to net cash used in operating activities		
Depreciation and amortization	633	576
Non-cash interest expense related to notes payable	621	145
Stock-based compensation expense	6,435	13,129
Loss on extinguishment of debt	1,568	—
Impairment of equipment related to restructuring	335	—
Gain on asset disposal	(83)	—
Changes in operating assets and liabilities:		
Accounts receivable	772	2,379
Contract asset	3,000	(3,000)
Inventory	(847)	(748)
Prepaid expenses and other assets	569	3,708
Accounts payable	(781)	(2,096)
Accrued expenses and other liabilities	(5,851)	(909)
Deferred revenue	(6)	(654)
Operating lease right-of-use assets	1,402	—
Operating lease liabilities	(1,352)	—
Net cash used in operating activities	(63,670)	(59,628)
Investing activities		
Acquisition of intangible assets	—	(4,750)
Proceeds from sale of property and equipment	586	—
Purchases of property and equipment	(108)	(204)
Net cash provided by (used in) investing activities	478	(4,954)
Financing activities		
Repayment of debt, including final payment	(30,480)	—
Proceeds from sale of common stock and prefunded warrants under registered direct offering, net of issuance costs	7,066	—
Proceeds from issuance of common stock under "at-the-market" equity offering sales agreement, net of issuance costs	—	7,039
Proceeds from exercise of warrant	4	—
Proceeds from issuance of debt, net of issuance costs	—	28,949
Proceeds from issuance of stock under stock plans	65	459
Net cash provided by (used in) financing activities	(23,345)	36,447
Net decrease in cash, cash equivalents and restricted cash	(86,537)	(28,135)
Cash, cash equivalents and restricted cash at beginning of period	108,475	136,610
Cash, cash equivalents and restricted cash at end of period	$ 21,938	$ 108,475
Supplemental cash flow information:		
Cash paid for interest on long-term debt	$ 1,955	$ 480

See accompanying notes to consolidated financial statements.

1 . Organization and Operations

The Company

Tetraphase Pharmaceuticals, Inc. (the " Company ") is a biopharmaceutical company using its proprietary chemistry technology to create, develop and commercialize novel tetracyclines for serious and life-threatening conditions, including bacterial infections caused by multidrug-resistant, or MDR, bacteria. There is a medical need for new antibiotics as resistance to existing antibiotics increases. In recognition of this need, the Company has developed its product, Xerava (eravacycline), a fully synthetic fluorocycline, as an intravenous, or IV antibiotic for use as a first-line empiric monotherapy for the treatment of MDR infections, including MDR Gram-negative infections, such as those found in complicated intra-abdominal infections, or cIAI.

On August 27, 2018, the United States Food and Drug Administration, or FDA, approved Xerava for the treatment of cIAI in adults. Approval of Xerava was based on its IGNITE (Investigating Gram-Negative Infections Treated with Eravacycline) phase 3 program. In October 2018, the Company commenced sales of Xerava in the United States.

On September 20, 2018, based on the results of IGNITE 1 , the European Commission, or EC, granted marketing authorization for Xerava for the treatment of cIAI in adults in all 28 countries of the European Union, or EU, plus Norway, Iceland and Liechtenstein. The Company has not yet commenced sales outside of the U.S. In February 2018 the Company entered into a license agreement with Everest Medicines Limited, or Everest Medicines, granting Everest Medicines commercialization rights to eravacycline in China and other Asian territories.

In June 2019, the Company announced a restructuring of its organization, including a 20 % reduction in headcount, designed to focus the Company ' s cash resources on commercializing Xerava primarily in the hospital setting. This reorganization included the elimination of the Company ' s internal research function. As part of our restructuring, the Company decided not to engage in further product development, including conducting clinical trials of its product candidates, and is exploring out-licensing opportunities for all of its pipeline of early-stage antibiotics and oncology product candidates.

Liquidity and Going Concern

Accounting Standards Update (" ASU "), 2014 - 15 , Presentation of Financial Statements-Going Concern (Subtopic 205 - 40), also referred to as Accounting Standards Codification (" ASC ") 205 - 40 (" ASC 205 - 40 "), requires the Company to evaluate whether conditions and/or events raise substantial doubt about its ability to meet its future financial obligations as they become due within one year after the financial statements are issued. This evaluation requires management to perform two steps. First, management must evaluate whether there are conditions and events that raise substantial doubt about the entity ' s ability to continue as a going concern. Second, if management concludes that substantial doubt is raised, management is required to consider whether it has plans in place to alleviate that doubt. Disclosures in the notes to the financial statements are required if management concludes that substantial doubt exists or that its plans alleviate the substantial doubt that was raised.

The Company has incurred annual net operating losses in every year since its inception. As of December 31, 2019, the Company had incurred losses since inception of $ 604.1 million and anticipates that it will continue to incur significant operating losses for the foreseeable future. The Company has financed its operations primarily through public offerings and private placements of equity securities, debt financings, revenue from United States government grants and contract awards and milestone payments from its licensing agreement. The Company will be required to obtain further funding through public or private equity offerings, debt financings, collaborations and licensing arrangements or other sources to fund our operations including ongoing spending to commercialize Xerava.

As reflected in the consolidated financial statements, the Company had available cash and cash equivalents of $ 21.2 million at December 31, 2019. In addition, on January 24, 2020, the Company raised $ 15.9 million in net proceeds through a private placement and registered direct offering. The Company ' s forecasted cash required to fund operations, including its

projected revenues from sales of Xerava, for a period of at least one year from the date of issuance of these consolidated financial statements, indicates that the Company has insufficient funds to continue operations through March 11, 2021, one year from the issuance of these financial statements. This estimate is based on certain significant assumptions, which are uncertain and may turn out to be incorrect. In particular, the forecast assumes continued significant growth of Xerava revenue, for which the Company has limited historical experience to base its estimate. In addition, the Company has forecast a continued reduction in expenses in 2020 as a result of the restructuring announced in June 2019. If these estimates are incorrect, the Company may use its cash resources sooner than expected. These factors raise substantial doubt about the Company ' s ability to continue as a going concern.

The Company will be required to obtain further funding through public or private equity offerings, debt financings, collaborations and licensing arrangements or other sources to fund its operations including ongoing spending to commercialize Xerava, however, there can be no assurance that the Company will be able to obtain such funding or generate product revenue or revenues from collaborative partners, on terms acceptable to the Company, on a timely basis or at all. If the Company is unable to raise capital when needed or if its operating results fall short of its current projections, or if the Company determines to explore strategic alternatives but is unable to consummate such a transaction or transactions on a timely basis or at all, the Company could be forced to significantly delay, scale back or discontinue the commercialization of Xerava or reduce other expenditures, seek collaborators at an earlier stage than otherwise would be desirable or on terms that are less favorable than might otherwise be available, and relinquish or license, potentially on unfavorable terms, the Company ' s rights to Xerava and its product candidates. The failure of the Company to obtain sufficient funds on acceptable terms when needed would have a material adverse effect on the Company ' s business, results of operations and financial condition. Because of the uncertainty in obtaining further funding, substantial doubt exists with respect to the Company ' s ability to continue as a going concern within one year after the date that the consolidated financial statements are issued.

The accompanying consolidated financial statements have been prepared on a going concern basis, which contemplates the realization of assets and satisfaction of liabilities in the ordinary course of business. The consolidated financial statements do not include any adjustments relating to the recoverability and classification of recorded asset amounts or the amounts and classification of liabilities that might result from the outcome of this uncertainty.

2 . Summary of Significant Accounting Policies

Basis of Presentation

The accompanying consolidated financial statements have been prepared in conformity with accounting principles generally accepted in the United States of America (" GAAP "). Any reference in these notes to applicable guidance is meant to refer to the authoritative GAAP as found in the Accounting Standards Codification (" ASC ") and Accounting Standards Update (" ASU ") of the Financial Accounting Standards Board (" FASB ").

Segment Information

Operating segments are defined as components of an enterprise about which separate discrete information is available for evaluation by the chief operating decision maker, or decision-making group, in deciding how to allocate resources and in assessing performance. The Company views its operations and manages its business in one operating segment, which is the business of developing and commercializing its proprietary chemistry technology to create novel antibiotics for serious and life-threatening infections, including multidrug-resistant infections.

Reverse Stock Split

On September 25, 2019, the Company ' s Board of Directors authorized a 1 -for- 20 reverse stock split and approved an amendment to the Company ' s Certificate of Incorporation (the " Amendment ") to effect the 1 -for- 20 reverse split of the Company ' s common stock, which was effected on September 26, 2019. All of the share and per share amounts disclosed in these consolidated financial statements have been adjusted to reflect the reverse stock split.

Use of Estimates

The preparation of financial statements in conformity with GAAP requires management to make estimates and assumptions that affect the reported amounts of assets, liabilities, revenue and expenses, and related disclosures. On an ongoing basis, the Company ' s management evaluates its estimates, including product revenue, inventory, impairment of intangible assets, stock-based compensation expense, and going concern considerations. The Company bases its estimates on historical experience and other market-specific or other relevant assumptions that it believes to be reasonable under the circumstances. Actual results may differ from those estimates or assumptions.

Concentrations of Credit Risk and Off-Balance Sheet Risk

Financial instruments that potentially subject the Company to concentrations of credit risk are primarily cash, cash equivalents and restricted cash. The Company maintains its cash and cash equivalent balances in the form of cash and money market accounts with financial institutions that management believes are creditworthy. The Company ' s investment policy includes guidelines on the quality of the institutions and financial instruments and defines allowable investments that the Company believes minimize its exposure to concentration of credit risk. The Company has no financial instruments with off-balance-sheet risk of loss.

The Company is also subject to credit risk on its accounts receivable. The Company ' s trade receivables from product sales have payment terms ranging from 30 to 60 days. The Company has evaluated the creditworthiness of its customers and has determined each of them to be creditworthy. The Company has not experienced any trade receivable losses to date.

Principles of Consolidation

The consolidated financial statements include the accounts of the Company and its wholly owned subsidiaries. All significant intercompany balances and transactions have been eliminated in consolidation.

Cash and Cash Equivalents

The Company considers all highly liquid investments with maturities of three months or less from the date of purchase to be cash equivalents. Cash and cash equivalents at December 31, 2019 and 2018 consisted of cash and money market funds.

Fair Value Measurements

The Company ' s financial instruments consist principally of cash and cash equivalents, accounts receivable, accounts payable, and accrued liabilities. Fair value measurements are classified and disclosed in one of the following three categories:

Level 1 — Quoted prices in active markets for identical assets or liabilities.

Level 2 — Inputs other than Level 1 that are observable, either directly or indirectly, such as quoted prices for similar assets or liabilities; quoted prices in markets that are not active; or other inputs that are observable or can be corroborated by observable market data for substantially the full term of the assets or liabilities.

Level 3 — Unobservable inputs that are supported by little or no market activity and that are significant to the fair value of the assets or liabilities.

Financial instruments measured at fair value as of December 31, 2019 and 2018 are classified below based on the three fair value hierarchy tiers described above (in thousands):

	Balance	Fair Value Measurements at Reporting Date Using		
		Level 1	Level 2	Level 3
December 31, 2019				
Cash and money market funds	$ 21,239	$ 21,239	$ —	$ —
December 31, 2018				
Cash and money market funds	$ 107,776	$ 107,776	$ —	$ —

The Company measures cash equivalents at fair value on a recurring basis. The fair value of cash equivalents is determined based on " Level 1 " inputs, which consist of quoted prices in active markets for identical assets which is materially consistent with its cost.

Accounts Receivable

Accounts receivable at December 31, 2019 and December 31, 2018 represent amounts due from two main sources: (1) Trade accounts receivable of $ 0.8 million and $ 0.1 million, respectively, consisting of payments to be received from customers for sales of Xerava, net of prompt payment discounts, chargebacks, rebates and certain fees and (2) contract accounts receivable of $ 0.7 million and $ 2.2 million, respectively, related to the Company ' s government-related agreements.

Contract accounts receivable relate to payments from entities administering the Company ' s government-related agreements which include unbilled contract accounts receivable of $ 0.7 million and $ 0.7 million at December 31, 2019 and 2018 , respectively.

Contract Balances

The Company recognizes a contract asset when the Company transfers goods or services to a customer before the customer pays consideration or before payment is due, excluding any amounts presented as a receivable (i.e., accounts receivable). A contract asset represents the Company ' s right to consideration in exchange for goods or services that the Company has transferred to a customer.

As of December 31, 2018, such contract assets were $ 3.0 million in relation to milestone payments to be received under the terms of the Everest Medicines License Agreement. For the twelve -month period ended December 31, 2018, the Company recognized license revenue included in such contract assets of $ 3.0 million. See Note 3 for further details.

Inventory

Inventory is stated at the lower of cost or net realizable value on a first-in, first-out (FIFO) basis. Prior to the regulatory approval of Xerava, given the uncertainty of approval, the Company recognized as research and development expense costs related to the manufacture of Xerava. Upon approval of Xerava, the Company began to capitalize such costs as inventory.

During each quarter, the Company performs an assessment quantifying any potential excess or obsolete inventory and writes down any such inventory to its net realizable value in the period in which the impairment is identified. These adjustments are based upon multiple factors, including inventory levels at the company and at its specialty distributors, projected demand and product shelf life. These impairment charges, if required, are recorded as a cost of revenue. As of December 31, 2019 and 2018 , there was no excess or obsolete inventory.

Inventory consisted of the following at December 31:

	December 31, 2019	December 31, 2018
Raw Materials	$ -	$ -
Work-in-process	115	655
Finished goods	1,480	93
Total Inventory	$ 1,595	$ 748

Inventory is related to commercial product, Xerava. There were no reserves or write downs for excess and obsolete inventory during the years ended December 31, 2019 and 2018 .

Leases

Effective January 1, 2019, the Company adopted Accounting Standards Codification, or ASC, Topic 842 , Leases. The Company adopted the new guidance as of January 1, 2019 using the modified retrospective adoption method in which it did not restate prior periods. Prior periods are presented in accordance with ASC 840 , Leases.

The Company ' s review and approval process for new leases, contracts, amendments and renewals includes an evaluation at the inception of each agreement to determine whether the contract is within the scope of ASC Topic 842 , or other areas of accounting guidance. The Company ' s contracts are determined to contain a lease within the scope of ASC Topic 842 when all of the following criteria based on the specific circumstances of the agreement are met: (1) there is an identified asset for which there are no substantive substitution rights; (2) the Company has the right to obtain substantially all of the economic benefits from the identified asset; and (3) the Company has the right to direct the use of the identified asset.

Upon transition to ASC 842 , an operating lease asset is valued at the amount of the lease liability adjusted for prepaid or accrued lease payments, the remaining balance of any lease incentives received, unamortized initial direct costs and impairment of the operating lease asset. Once the Company assesses a contract for a lease, it will only reassess whether a contract is or contains a lease if the terms and conditions of the contract are amended. Leases with a greater than one -year duration are categorized on the balance sheet as operating lease assets, lease liabilities, and if applicable, long-term lease liabilities. Leases with a duration of less than one year are not presented on the balance sheet.

The Company records the operating lease asset and related lease liability based upon the present value of the lease payments not yet paid using the discount rate for the lease established at the commencement date. The discount rate associated with each lease agreement is based upon either (i) the rate implicit in the lease or (ii) the Company ' s incremental borrowing rate if the rate implicit in the lease is indeterminable.

Although separation of lease and non-lease components is required, certain practical expedients are available to entities. The Company ' s facilities operating leases have lease and non-lease components which the Company has elected to account for as one single lease component. The lease component results in an operating lease asset being recorded on the balance sheet and amortized as lease expense on a straight-line basis to the statements of operations.

Property and Equipment, Net

Property and equipment are stated at cost. Costs of major additions and betterments are capitalized; maintenance and repairs which do not improve or extend the life of the respective assets are charged to expense. Upon disposal, the related cost and accumulated depreciation or amortization is removed from the accounts and any resulting gain or loss is included in the consolidated statements of operations and comprehensive loss. Depreciation is computed using the straight-line method over the estimated useful lives of the assets, which range from three to five years. Leasehold improvements are amortized over the estimated useful lives of the assets or related lease terms, whichever is shorter.

Assets Held-for-Sale

The Company classifies assets as held-for-sale when the following conditions are met: (1) management has committed to a plan to sell, (2) the assets are available for immediate sale in their present condition, (3) the Company has

initiated an active program to identify a buyer, (4) it is probable that a sale will occur within one year, (5) the assets are actively marketed for sale at a reasonable price in relation to their current fair value, and (6) there is a low likelihood of significant changes to the plan or that the plan will be withdrawn. If all of the criteria are met as of the balance sheet date, the assets are presented separately in the balance sheet as held-for-sale at the lower of the carrying amount or fair value less costs to sell. The assets are then no longer depreciated or amortized while classified as held-for-sale.

During 2019 , the Company disposed of property and equipment with a gross carrying amount of $ 0.1 million and accumulated depreciation of $ 0.1 million. The Company did not dispose of any property and equipment during 2018 . Depreciation and amortization expense amounted to $ 0.2 million and $ 0.5 million in the periods ended December 31, 2019 and December 31, 2018, respectively.

The Company initially recorded certain laboratory equipment asset impairments in the second quarter of 2019 in accordance with ASC 360 Property, Plant and Equipment for assets held-and-used, as the criteria to classify the laboratory equipment as held-for-sale had not been met. The Company identified an indicator of impairment related to this held-and-used laboratory equipment as it was more likely than not that some of its laboratory equipment would be sold or otherwise disposed of significantly before the end of its previously estimated useful life primarily as a result of the restructuring described in Note 14 . For the laboratory equipment where its fair value did not exceed its carrying amount, an impairment was recognized. Fair value was an estimate of the sales price less cost to sell. In the third quarter of 2019 , the Company committed to a plan to actively sell certain of its laboratory equipment. Having met all other criteria, the laboratory equipment met the criteria to classify that equipment as held-for-sale. At December 31, 2019, $ 0.1 million of laboratory equipment was classified as held-for-sale as reflected in the consolidated balance sheet. Laboratory equipment held-for-sale is reflected at the lower of its carrying amount or fair value less the cost to sell, with any excess recorded as an impairment. In aggregate, impairment losses recognized in connection with laboratory equipment was $ 0.3 million and included in research and development costs in the consolidated statement of operations for the year ended December 31, 2019.

Long-Lived Assets

The Company evaluates the recoverability of its property, equipment and intangible assets when circumstances indicate that an event of impairment may have occurred. The Company recognizes an impairment loss only if the carrying amount of a long-lived asset is not recoverable based on its undiscounted future cash flows. Impairment is measured based on the difference between the carrying value of the related assets or businesses and the fair value of such assets or businesses.

Restricted Cash

At December 31, 2019 the Company had $ 699,000 in restricted cash deposits with a bank, of which $ 500,000 is serving as security for our field force corporate credit card program and $ 159,000 is collateral for a letter of credit issued to the landlord of the Company ’ s leased facility. If the Company defaults on its rental obligations, $ 159,000 will be payable to the landlord. In addition, the Company has $ 40,000 in restricted cash to secure the Company ’ s corporate purchasing credit card.

Intangible Assets

The Company maintains definite-lived intangible assets related to certain capitalized milestone payments to Harvard University (Harvard). These assets are amortized over their remaining useful lives, which are estimated based on the shorter of the remaining patent life or the estimated useful life of the underlying product. Intangible assets are amortized using the economic consumption method if anticipated future revenues can be reasonably estimated. The straight-line method is used when future revenues cannot be reasonably estimated.

The Company assesses its intangible assets for impairment if indicators are present or changes in circumstance suggest that impairment may exist. Events that could result in an impairment, or trigger an interim impairment assessment, include the receipt of additional clinical or nonclinical data regarding one of the Company ’ s drug candidates or a potentially competitive drug candidate, changes in the clinical development program for a drug candidate, or new information regarding potential sales for the drug. If impairment indicators are present or changes in circumstance suggest that impairment may exist, the Company performs a recoverability test by comparing the sum of the estimated undiscounted cash flows of each intangible asset to its carrying value on the consolidated balance sheet. If the undiscounted cash flows used in the

recoverability test are less than the carrying value, the Company would determine the fair value of the intangible asset and recognize an impairment loss if the carrying value of the intangible asset exceeds its fair value.

The Company capitalized milestone payments of $ 4.75 million related to regulatory approval of Xerava in the US and EU, which will be amortized over their estimated useful lives of approximately 12 years. Amortization expense for each of the following five years is expected to be $ 0.4 million.

During the year ended December 31, 2019, management identified impairment indicators related to the intangible assets for the Harvard milestones. As result, an interim test of recoverability of the intangible asset was performed based on the estimated undiscounted future cash flows related to the intangible asset, and concluded the intangible asset was recoverable. The Company ' s quantitative assessment considered significant assumptions related to estimates of future Xerava sales, offset by direct costs to derive the sales. The estimates of future Xerava sales include estimates of significant growth as the product was recently launched in the fourth quarter of 2018 . Given the limited history of sales and the inherent difficulty in making a long-range forecast, such estimates contain significant uncertainty. If the assumptions regarding forecasted revenue or the costs to derive such revenues are not achieved, we may be required to perform future impairment analyses and record an impairment charge for the intangible asset in future periods. It is not possible at this time to determine if any such future impairment charge would result or, if it does, whether such charge would be material.

Revenue Recognition

Product Revenue

Revenue recognition under ASC 606 is applied through a five -step model as follows: (1) identify the contract(s) with the customer; (2) identify performance obligations in the contract; (3) determine the transaction price; (4) allocate transaction price to the performance obligation; and (5) recognize revenue when (or as) each performance obligation is satisfied.

The Company ' s arrangements with its distributors are determined to be contracts within the scope of ASC 606 when all five criteria in ASC 606 are met. These five criteria were assessed at the inception of each arrangement. Since the criteria were met during this initial assessment, the Company will not reassess the criteria unless there is an indication of a significant change in facts and circumstances. In order to meet the definition of a contract, it must also be probable that the Company will collect the consideration to which it is entitled for goods or services to be transferred. Once the contract is determined to be within the scope of ASC 606 , the Company assesses the goods or services to be delivered with each contract, determines whether those are performance obligations and the related transaction price. The Company then recognizes revenue based on the transaction price that is allocated to the respective performance obligation when the performance obligation is satisfied.

The Company ' s product revenue consists of the sales of Xerava, which the Company began selling to customers in October 2018. The Company sells Xerava to specialty distributors. These customers resell Xerava to hospitals or other treatment centers. In addition to these distributor agreements and the related discounts and allowances, the Company is subject to government mandated rebates, chargebacks, and discounts with respect to the purchase of the Company ' s product. Product revenue is recognized net of reserves for all variable consideration, including discounts, chargebacks, government rebates and product returns. The Company is expensing the costs of obtaining and fulfilling these contracts when incurred. The Company has opted to immediately expense the incremental cost of obtaining a contract when the underlying related asset would have been amortized over one year or less.

The performance obligation from the sale of Xerava is satisfied and revenue is recognized when the specialty distributor customer obtains control of the product, which typically occurs upon delivery to the Customer.

Revenues from product sales are recorded at the net sales price, or transaction price, which includes estimates of variable consideration for which reserves are established and result from contractual adjustments, government rebates, returns and other allowances that are offered within the contracts with our Customers, healthcare providers, payors and other indirect customers relating to the sale of our products.

Reserves for Variable Consideration

The Company evaluates its contracts with customers for forms of variable consideration which may require an adjustment to the transaction price based on their estimated impact. Revenues from product sales are recorded at the gross sales price, net of variable consideration, as described above.

The Company estimates variable consideration using the expected value method, which is the sum of probability-weighted amounts in a range of possible outcomes. These outcomes include market events and trends, forecasted product demand patterns, customer buying patterns and statutory requirements. The resulting reserves represent the Company ' s best estimates of variable consideration it expects to occur.

Before it can include an amount of variable consideration in the transaction price, the Company must consider whether the amount of variable consideration is constrained. The Company includes estimates of variable consideration in revenue only when it has a " high degree of confidence " that revenue will not be reversed in a subsequent reporting period. To include variable consideration in the estimated transaction price, the entity has to conclude that it is " probable " that a significant revenue reversal will not occur in future periods, considering both the likelihood and magnitude of a revenue reversal to apply the constraint. Based on the above, the Company applies the constraint to variable consideration included in its contracts if it cannot conclude that it is probable that a significant revenue reversal will not occur in future periods.

Trade and Group Purchasing Discounts and Allowances : The Company offers its customers prompt pay discounts and service fees as stated in its customer and group purchasing organization contracts. The Company pays these service fees to its customers and group purchasing organizations in exchange for their performance of various product distribution, marketing and promotional services targeted at advancing end-user sales of the Company ' s product. The related reserves are set in the same period the corresponding revenue is recognized, resulting in a reduction of product revenue.

Government Chargebacks and Rebates : Under the terms of the Company ' s master agreements, customers may charge back the Company for reimbursement when they are contractually obligated to sell products to government entities or other end-users at a lower price than the wholesale acquisition cost, or WAC, at which those products were acquired from the Company. These rebates consist of Medicare, TriCare and Medicaid rebates as well as those related to other government drug pricing and reimbursement programs.

Product Returns : Products are eligible for return by the Customers in various scenarios under the Company ' s returns policies included as part of its master distribution agreements. Return options are provided for expired merchandise, short-dated merchandise, products damaged in transit, or any discontinued, withdrawn, or recalled products. The Company estimates the amount of product that may be returned and records this as a reduction in revenue in the relevant period. The Company currently estimates product return liabilities using available industry data, sales information and visibility into the inventory remaining in the distribution channel. The Company has not received any returns to date since launch.

Total product revenue allowances and reserves as of December 31, 2019 were $ 0.1 million.

The Company will continue to assess its estimates of the various components of variable consideration as it accumulates additional historical data and make adjustments to these estimates and allowances accordingly.

Collaboration Revenue

The Company has entered into an out-licensing agreement that is evaluated under Accounting Standards Codification, Topic 606 (" Topic 606 "), Revenue from Contracts with Customers, through which the Company licenses certain of its product candidates ' rights to a third party. Any future out-licensing agreements entered into by the Company and additional third parties shall also be evaluated under Topic 606 . Terms of these arrangements include various payment types, typically including one or more of the following: upfront license fees; development, regulatory and commercial milestone payments; payments for manufacturing supply services; and/or royalties on net sales of licensed products.

To determine the amount and timing of revenue to be recognized under each agreement, the Company evaluates the following criteria: (i) confirming the goods or services in the contract; (ii) defining the performance obligations under the agreement; (iii) determining the transaction price, including any constraint on variable consideration; (iv) allocating the

transaction price to the performance obligations; and (v) defining how the revenue will be recognized for each performance obligation. In determining the accounting treatment for these arrangements, the Company develops assumptions to determine the stand-alone selling price for each performance obligation in the contract. These assumptions may include forecasted revenues, development timelines, discount rates and probabilities of technical and regulatory success.

Licenses of Intellectual Property : If the license to the Company ' s intellectual property is determined to be distinct from the other performance obligations identified in the arrangement, the Company recognizes revenue from upfront fees allocated to the license when the license, including any associated know-how, is transferred to the licensee and the licensee can use and benefit from the license. For licenses that are bundled with other obligations, the Company uses judgment to evaluate the combined performance obligation to determine whether it is satisfied over time or at a point in time and the appropriate method of measuring completion for purposes of recognizing revenue.

Milestone Payments : For arrangements that include development milestone payments, the Company evaluates whether the milestones are considered probable and estimates the amount to be included in the transaction price using the most likely amount method. If it is probable that a significant revenue reversal would not occur, the associated milestone value is included in the transaction price. Milestone payments that are not within the Company ' s control or the licensee ' s control, such as regulatory approvals, are not considered probable of being achieved until those approvals are received.

Manufacturing Supply : Arrangements that include a promise for future supply of drug substance or drug product for either clinical development or commercial supply at the licensee ' s discretion are generally considered as options. The Company assesses if these options provide a material right to the licensee and if so, they are accounted for as separate performance obligations. If the Company is entitled to additional payments when the licensee exercises these options, the Company recognizes revenue when the licensee obtains control of the goods, which is upon delivery.

Royalties : 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 of the royalty has been allocated has been satisfied (or partially satisfied).

Government Contract Revenue

The Company ' s government contract revenue has been derived from its subcontracts with CUBRC under the BARDA Contract, and the NIAID Contract, its subaward under the NIAID Grant and its cost reimbursement Sub-Award Agreement with the Trustees of Boston University, the administrator of the CARB-X program (Note 3). The Company recognized revenue under these best-efforts, cost-reimbursable and cost-plus-fixed-fee subcontracts and subaward as the Company performed services under the subcontracts and subaward so long as a subcontract and subaward had been executed and the fees for these services were fixed or determinable, legally billable and reasonably assured of collection. Recognized amounts reflected the Company ' s partial performance under the subcontracts and subaward and equal direct and indirect costs incurred plus fixed fees, where applicable. The Company did not recognize revenue under these arrangements for amounts related to contract periods where funding was not yet committed as amounts above committed funding thresholds would not be considered fixed or determinable or reasonably assured of collection. Revenues and expenses under these arrangements were presented gross on the consolidated statements of operations and comprehensive loss as the Company determined it was the primary obligor under these arrangements relative to the research and development services it performed as lead technical expert.

Revenue under the Company ' s subcontracts under both the NIAID Contract and the BARDA Contract and under the CARB-X Award were earned under a cost-plus-fixed-fee arrangement in which the Company was reimbursed for direct costs incurred plus allowable indirect costs and a fixed-fee earned. Billings under these arrangements were based on approved provisional indirect billing rates, which permitted recovery of allowable fringe benefits, allowable overhead and general and administrative expenses and a fixed fee.

Revenue under the Company ' s subaward under the NIAID Grant was earned under a cost-reimbursable arrangement in which the Company was reimbursed for direct costs incurred plus allowable indirect costs. Billings under the NIAID Grant were based on approved provisional indirect billing rates, which permitted recovery of fringe benefits and allowable general and administrative expenses.

Cost of Revenue

Cost of revenue consists primarily of the manufacturing and distribution costs for Xerava, Xerava net sales-based royalties and the amortization of the intangible asset associated with certain milestones paid to Harvard related to Xerava. All manufacturing costs incurred prior to Xerava ' s approval in the United States on August 27, 2018 have been expensed in research and development and are not included in cost of revenue. Manufacturing costs at contract manufacturing sites not yet approved by the US FDA for commercial production have also been expensed in research and development and are not included in cost of revenue.

Research and Development Expenses

Research and development costs are charged to expense as incurred and include, but are not limited to:

- personnel-related expenses, including salaries, benefits, and stock-based compensation expense;
- expenses incurred under agreements with contract research organizations, contract manufacturing organizations and consultants that provide preclinical, clinical, regulatory and manufacturing services;
- certain payments made under the Company ' s license agreement with Harvard University;
- the cost of acquiring, developing and manufacturing clinical trial materials and lab supplies;
- facility, depreciation and other expenses, which include direct and allocated expenses for rent, maintenance of the Company ' s facilities, insurance and other supplies; and
- costs associated with preclinical and regulatory activities.

Costs for certain development activities, such as clinical trials, 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 the Company by its vendors on their actual costs incurred. Payments for these activities are based on the terms of the individual arrangements, which may differ from the pattern of costs incurred, and are reflected in the financial statements as prepaid or accrued research and development. In certain circumstances, the Company is required to make nonrefundable advance payments to vendors for goods or services that will be received in the future for use in research and development activities. In such circumstances, the nonrefundable advance payments are deferred and capitalized, even when there is no alternative future use for the research and development, until related goods or services are provided.

Comprehensive Loss

Comprehensive loss consists of net income or loss and changes in equity during a period from transactions and other events and circumstances generated from non-owner sources. The Company ' s net loss equals comprehensive loss for all periods presented.

Income Taxes

The Company uses the liability method of accounting for income taxes. Under this method, deferred tax assets and liabilities are determined based on the difference between the financial reporting and the tax reporting basis of assets and liabilities and are measured using the enacted tax rates and laws that are expected to be in effect when the differences are expected to reverse. The Company provides a valuation allowance against net deferred tax assets unless, based upon the available evidence, it is more likely than not that the deferred tax assets will be realized. The Company has evaluated available evidence and concluded that the Company may not realize the benefit of its deferred tax assets; therefore, a valuation allowance has been established for the full amount of the deferred tax assets. The Company ' s practice is to recognize interest and/or penalties related to income tax matters in income tax expense.

Stock-Based Compensation

The Company determines stock-based compensation at the grant date using the Black-Scholes option pricing model to estimate fair value for employee and non-employee equity awards. The Company recognizes the value of the award as an expense on a straight-line basis over the requisite service period using the estimated fair market value of the stock and accounts for forfeitures as they occur. For employee awards with performance conditions, the Company assesses whether the condition is probable of achievement, in which case, the fair value of the award is recognized over the requisite service period.

Recently Adopted Accounting Pronouncements

In June 2018, the FASB issued ASU 2018-07, Compensation – " Stock Compensation (Topic 718), Improvements to Nonemployee Share-based Payment Accounting, which addresses aspects of the accounting for nonemployee share-based payment transactions. This pronouncement is effective for annual reporting periods and interim periods within those annual periods beginning after December 15, 2019. The Company early adopted ASU 2018-07 on April 1, 2019 and there was no impact on adoption.

In February 2016, the Financial Accounting Standards Board, or FASB, issued ASU No. 2016-02, *Leases* (Topic 842), which among other things, results in the recognition of lease assets and lease liabilities by lessees on the Company ' s balance sheets for virtually all leases. ASU 2016-02 supersedes most previous lease accounting guidance and is effective for interim and annual periods beginning after December 15, 2018. The Company adopted the new guidance as of January 1, 2019 using the modified retrospective adoption method in which it did not restate prior periods. The Company has elected the transition relief package of practical expedients permitted within Topic 842. Accordingly, the Company has not reassessed the classification of its existing leases as the transition date, whether existing contracts at the transition date contain a lease, or whether unamortized initial direct costs before the transition adjustments would have met the definition of initial direct costs at lease commencement. The Company does not allocate consideration in its leases to lease and non-lease components and does not record leases on its balance sheet with terms of 12 months or less.

The Company uses its estimated incremental borrowing rate, which is derived from information available at the lease commencement date, in determining the present value of lease payments. The Company ' s incremental borrowing rate represents the rate of interest that the Company would have to pay to borrow over a similar term an amount equal to the lease payments in a similar economic environment. The Company considers its recent debt issuances and publicly available data for instruments with similar terms and characteristics when calculating its incremental borrowing rates.

The adoption had a material impact on the consolidated balance sheet related to the recognition of operating lease assets of $6.2 million and lease liabilities of $6.3 million as of January 1, 2019, along with derecognition of deferred rent originally accounted for under the legacy guidance. The adoption did not have a material impact on the consolidated statement of operations. The Company has implemented changes to related processes, controls and disclosures upon adoption of the standard.

There have been no other significant changes to the Company ' s significant accounting policies since the beginning of this fiscal year.

Recent Accounting Pronouncements Not Yet Adopted

In June 2016, the FASB issued ASU No. 2016-13, " Financial Instruments – Credit Losses (Topic 326): Measurement of Credit Losses on Financial Instruments, or ASU 2016-13. ASU 2016-13 will change how companies account for credit losses for most financial assets and certain other instruments. For trade receivables, loans and held-to-maturity debt securities, companies will be required to recognize an allowance for credit losses rather than reducing the carrying value of the asset. ASU 2016-13 is effective for fiscal years beginning after December 15, 2022, including interim periods within those fiscal years. Early adoption is permitted. The Company is currently evaluating the potential impact that the adoption of ASU 2016-13 will have on the Company ' s consolidated financial position and results of operations.

In December 2019, the FASB issued ASU 2019-12, *Simplifying the Accounting for Income Taxes* , or ASU 2019-12, which includes amendments to simplify the accounting for income taxes by removing certain exceptions to the general

principles in ASC 740, Income Taxes, or ASC 740. The amendments also improve consistent application of and simplify U.S. GAAP for other areas of ASC 740 by clarifying and amending existing guidance. The new guidance is effective for the Company for annual periods beginning after December 15, 2021 and interim periods within fiscal years beginning after December 15, 2022. Early adoption of the amendments is permitted. The Company is currently evaluating the potential impact that the adoption of ASU 2019-12 will have on the Company ' s consolidated financial statements.

Net Loss per Common Share

Basic net loss per share is calculated by dividing the net loss by the weighted average number of shares of common stock outstanding for the period, without consideration for common stock equivalents. Pre-funded warrants of are considered outstanding as of their issuance date and are included in the basic net loss per share calculation. Diluted net loss per share is computed by dividing the net loss by the weighted average number of common share equivalents outstanding for the period determined using the treasury-stock method. For purposes of this calculation, warrants, stock options, and restricted stock units are considered to be common stock equivalents and are only included in the calculation of diluted net loss per share when their effect is dilutive.

The amounts in the table below were excluded from the calculation of diluted weighted-average shares outstanding, prior to the use of the treasury stock method, due to their anti-dilutive effect:

	Year Ended December 31,	
	2019	2018
Warrants	2,151,211	20,718
Outstanding stock options	177,768	366,020
Unvested restricted stock units	91,981	54,035
Total	2,420,960	440,773

3. Significant Agreements and Contracts

License Agreement

Harvard University

In August 2006, the Company entered into a license agreement for certain intellectual property with Harvard. Under the license agreement, as of December 31, 2019, the Company has paid in aggregate $16.9 million in upfront license fees, sublicense fees, development and regulatory milestone payments and royalties on net sales of such product, for the licensed Harvard technology, and has issued 1,568 shares of common stock to Harvard.

For each product covered by the license agreement, the Company is obligated to make certain payments totaling up to approximately $15.1 million upon achievement of certain development and regulatory milestones and to pay additional royalties on net sales of such product. The Company is also obligated to make certain payments to Harvard based on amounts received under its license agreement with Everest Medicines Limited. For the years ended December 31, 2019 and 2018, the Company paid Harvard $1.1 million and $9.7 million, respectively.

Paratek

On March 18, 2019, the Company and Paratek Pharmaceuticals, Inc., or Paratek, entered into a license agreement, or the Paratek License Agreement. Under the terms of the Paratek License Agreement, Paratek granted to Tetraphase a non-exclusive, worldwide, royalty-bearing license, with the right to grant sublicenses, under certain Paratek patents.

The terms of the Paratek License Agreement provide for the Company to pay Paratek royalties at a low single digit percent on net sales of Xerava sold in the United States. The Company ' s obligation to pay royalties with respect to the licensed product is retroactive to the date of the first commercial sale of Xerava and shall continue until there are no longer any valid claims of the Paratek patents which will expire in October 2023.

Everest Medicines License Agreement

In February 2018, the Company entered into a license agreement (the " Everest License Agreement ") with Everest Medicines Limited (" Everest Medicines "), whereby the Company granted Everest Medicines an exclusive license to develop and commercialize eravacycline, for the treatment of complicated intra-abdominal infections and other indications, in mainland China, Taiwan, Hong Kong, Macau, South Korea and Singapore (the " Territory ").

Under the terms of the Everest License Agreement, the Company received from Everest Medicines an upfront cash payment of $7.0 million in the first quarter of 2018 and a cash payment of $2.5 million related to Everest Medicines ' submission of an Investigational New Drug Application, or IND, with the Chinese Food and Drug Administration in June 2018. In 2019, the Company received an additional cash payment of $3.0 million related to Everest Medicine ' s initiation of a Phase 3 clinical trial.

The Company is also eligible to receive up to an aggregate of $11.0 million in future clinical development milestone payments and up to an aggregate of $20.0 million in sales milestone payments. There can be no guarantee that any such milestones or sales thresholds will in fact be met. The Company is obligated to make certain payments to Harvard based on amounts received from Everest Medicines under the Everest License Agreement pursuant to the existing license agreement by and between Harvard and the Company.

The Company will also be entitled to receive low double-digit tiered royalties on sales in the Territory, if any, of products containing eravacycline. Royalties are payable with respect to each jurisdiction in the Territory until the latest to occur of: (i) the last-to-expire of specified patent rights in such jurisdiction in the Territory; (ii) expiration of marketing or regulatory exclusivity in such jurisdiction in the Territory; or (iii) ten (10) years after the first commercial sale of a product in such jurisdiction in the Territory. In addition, royalties payable under the Everest License Agreement will be subject to reduction on account of generic competition and after patent expiry in a jurisdiction if required by applicable law, with any such reductions capped at certain percentages of the amounts otherwise payable during the applicable royalty payment period.

In addition, on July 29, 2019, the Company amended its original agreement with Everest Medicines to extend Everest Medicines ' exclusive license to develop and commercialize Xerava to the jurisdictions of the Malaysian Federation, the Kingdom of Thailand, the Republic of Indonesia, the Socialist Republic of Vietnam and the Republic of the Philippines. Under the terms of this amendment, the Company received from Everest Medicines an upfront, nonrefundable cash payment of $2.0 million in September 2019. As with the milestones discussed above, the Company is obligated to make certain payments to Harvard based on amounts received from Everest under this amendment pursuant to the existing license agreement by and between Harvard and the Company. During the year ended December 31, 2019, the Company incurred expense of $0.4 million related to this milestone.

Under the terms and conditions of the Everest License Agreement, Everest Medicines will be solely responsible for the development and commercialization of licensed products in the Territory. The Company agreed to manufacture clinical material, which will be paid by Everest at the Company ' s cost, as well as commercial supply, which will be paid by Everest at cost plus a reasonable margin.

In evaluating the recognition of revenue under the Agreement, the Company identified the following three performance obligations under the Agreement: (i) exclusive license to develop and commercialize eravacycline for the treatment of complicated intra-abdominal infections and other potential, future indications, in the Territory, (ii) provision of information and technical assistance related to the know-how transfer for the development of eravacycline; and (iii) provision of clinical supply to Everest Medicines.

The Company evaluated the Everest License Agreement under Topic 606 at the time of execution of the arrangement. Based on that evaluation, the upfront fee of $7.0 million represented the amount of the consideration to be included in the transaction price, which was allocated to the identified performance obligations. Subsequent to execution, the Company determined that the milestones for the Chinese IND and Phase 3 clinical trial were probable to be achieved and that a significant revenue reversal would not occur, and included the payment amounts of $2.5 and $3.0 million, respectively, in the transaction price.

The Company recognized the $2.0 million territory expansion upfront payment associated with the July 2019 amendment as collaboration revenue during the year ended December 31, 2019, as the Company has no further performance obligations pursuant to the arrangement.

No other clinical milestones, regulatory milestones, sales-based milestones or sales royalties have been included in the transaction price, as these milestones were not considered probable at execution or each reporting period thereafter given Everest Medicines relatively short operating history, the uncertainty of regulatory processes in China and that commercial sales have not commenced. The Company determined that the license and related know-how were a combined performance obligation as the license is not distinct without the provision of the related know-how transfer. The Company ' s requirement to manufacture clinical supply for Everest Medicines is dependent on Everest Medicines ' future purchases, the payment for which was determined to be at cost and therefore potentially represents a material right. However, based on the amount of clinical supply expected to be ordered by Everest Medicines, the Company estimated that the value of this right was immaterial.

Other Material Agreements

Patheon UK Limited Master Manufacturing Services Agreement

In June 2017, the Company and Patheon UK Limited and certain of its affiliates (" Patheon ") entered into a master manufacturing services agreement. Under the Patheon agreement, the Company is responsible for supplying the active pharmaceutical ingredient for eravacycline to Patheon, and Patheon is responsible for manufacturing eravacycline, conducting quality control, quality assurance, analytical testing and stability testing and packaging. The Company and Patheon entered into two related product agreements pursuant to the Patheon agreement that govern the terms and conditions of Patheon ' s manufacture of commercial supplies of eravacycline at Patheon ' s Greenville, North Carolina and Ferentino, Italy manufacturing sites. Pursuant to the Patheon agreement, the Company has agreed to order from Patheon at least a certain percentage of its annual commercial requirements for eravacycline in the United States and European Union each year for the term of the Patheon agreement. The Patheon agreement has an initial term ending December 31, 2022, and will automatically renew after the initial term for successive terms of two years each, unless either party gives notice of its intention to terminate at least 18 months prior to the end of the then current term. The Company may terminate a product agreement upon 30 days ' prior written notice under certain circumstances.

Finorga SAS Commercial Supply Agreement

In October 2017, the Company and Finorga SAS (" Novasep ") entered into a commercial supply agreement. Under the agreement, Novasep will, pursuant to accepted purchase orders entered into under the agreement, manufacture for commercial supply the active pharmaceutical ingredient for eravacycline. This agreement has an initial term ending October 16, 2022, and will automatically renew after the initial term, unless either party gives notice of its intention to terminate at least 18 months prior to the end of the then current term. The Company may terminate the Novasep agreement upon 30 days ' prior written notice under certain circumstances.

Government Grant and Contracts

BARDA Contract for Eravacycline

The Company received funding for the development of Xerava under an award to CUBRC from BARDA, an agency of the is U.S. Department of Health and Human Services. In January 2012, BARDA awarded a five-year contract, which was subsequently extended, that provided for up to a total of $67.3 million in funding for the development, manufacturing and clinical evaluation of eravacycline for the treatment of disease caused by bacterial biothreat pathogens (or BARDA Contract). The funding under the BARDA Contract was also used for the development, manufacturing and clinical evaluation of eravacycline to treat certain infections caused by life-threatening multidrug-resistant bacteria.

In connection with the BARDA Contract, in February 2012, the Company entered into a cost-plus-fixed-fee subcontract with CUBRC, an independent, not for profit, research corporation that specializes in U.S. government-based contracts, which was also the direct recipient of the BARDA Contract. The BARDA Contract and the Company ' s subcontract with CUBRC under the BARDA Contract had terms which expired on December 31, 2019. Committed funding from

CUBRC under the Company ' s BARDA subcontract was for up to approximately $41.3 million through December 31, 2019, the current contract end date. Total funds of $40.7 million have been received by the Company through December 31, 2019 under this contract. During the years ended December 31, 2019 and 2018, the Company recognized revenue of $1.3 million and $1.5 million, respectively, from the Company ' s subcontract under the BARDA Contract.

NIAID Grant and Contract for TP-271

The Company received funding for its phase 1 compound TP-271 from NIAID for the development, manufacturing, and clinical evaluation of TP-271 for respiratory diseases caused by biothreat and antibiotic-resistant public health pathogens, as well as bacterial pathogens associated with community-acquired bacterial pneumonia. The NIAID Contract was awarded in September 2011, provided up to a total of approximately $35.8 million and expired on March 31, 2019.

In connection with the NIAID Contract, in October 2011, the Company entered into a cost-plus-fixed-fee subcontract with CUBRC, the direct recipient of the NIAID Contract, which subcontract expired on March 31, 2019 under which the Company could originally receive funding of up to approximately $16.9 million (which was subsequently reduced to $16.3 million based on actual work performed), reflecting the portion of the NIAID Contract funding that could be paid to the Company for its activities. As of December 31, 2019, the Company had received $16.2 million under this agreement. The Company has not received any additional funds under this agreement since that date. Our obligations under the NIAID Contract had been met in full as of December 31, 2019. During the years ended December 31, 2019 and 2018, the Company recognized revenue of $0.1 million and $2.5 million, respectively, from the Company ' s subcontract under the NIAID Contract.

CARB-X Award for TP-6076

In March 2017, Combating Antibiotic Resistant Bacteria Biopharmaceutical Accelerator (CARB-X) selected the Company to receive up to $4.0 million in research funding over eighteen months for TP-6076. In connection with this funding, the Company entered into a cost reimbursement Sub-Award Agreement, or the Sub-Award Agreement, with the Trustees of Boston University, the administrator of the program. The Company began recognizing revenue from the Sub-Award Agreement in April 2017. During the years ended December 31, 2019 and 2018, the Company recognized revenue of $0.5 million and $2.0 million, respectively, under this Sub-Award Agreement and does not expect to receive any additional revenue under the award. As of December 31, 2019, the Company had received $3.2 million. Our obligations under this Sub-Award Agreement have been met in full as of December 31, 2019.

4. Property and Equipment, net and Assets Held-for-Sale

Property and equipment, net and assets held-for-sale at December 31, 2019 and 2018 consisted of the following (in thousands):

Depreciation and amortization expense related to property and equipment for the years ended December 31, 2019 and 2018 was $0.2 million and $0.5 million, respectively.

	December 31,		
	2019	2018	Depreciable lives
Leasehold improvements	$ 923	$ 923	shorter of assets life or lease term
Furniture and fixtures	234	509	5 years
Office and computer equipment	135	217	3 years
Laboratory equipment	-	3,278	5 years
Property and equipment, gross	1,292	4,927	
Less accumulated depreciation and amortization	(1,194)	(3,806)	
Property and equipment, net	$ 98	$ 1,121	
Assets held-for-sale	$ 53	$ -	

5. Accrued Expenses

Accrued expenses at December 31, 2019 and 2018 consisted of the following (in thousands):

	December 31, 2019	December 31, 2018
Salaries and benefits	$ 1,825	$ 3,801
Drug supply and development	2,608	3,901
Professional fees	573	1,178
Commercial	516	910
Clinical trial related	111	146
License payments	-	617
Other	161	1,208
Total	$ 5,794	$ 11,761

The Company has $0.9 million of employee bonuses that are payable contingent, which have not been accrued as of December 31, 2019.

6. Stockholder ’ s Equity

In January 2017, the Company entered into a Controlled Equity Offering Sales Agreement (the “ Sales Agreement ”), with Cantor Fitzgerald & Co. as sales agent (“ Cantor ”). In July 2017, the Company entered into an amendment to the Sales Agreement to increase the maximum aggregate offering price of the shares of common stock that it may issue and sell from time to time under the Sales Agreement from $40,000,000 to $80,000,000.

Under the Sales Agreement, as amended (the “ Amended Sales Agreement ”), Cantor may sell shares of the Company ’ s common stock by methods deemed to be an “ at-the-market ” offering as defined in Rule 415 promulgated under the Securities Act of 1933, as amended, including sales made directly on The Nasdaq Global Select Market or on any other existing trading market for the Company ’ s common stock.

The Company is not obligated to make any sales of shares of its common stock under the Amended Sales Agreement. The Company or Cantor may suspend or terminate the offering of shares of the Company ’ s common stock upon notice to the other party and subject to other conditions. The Company pays Cantor a commission rate equal to 3.0% of the gross proceeds per share sold.

As of December 31, 2019, the Company had sold an aggregate of 305,522 shares of common stock under the Sales Agreement, at an average selling price of approximately $129.80 per share for aggregate gross proceeds of $39.6 million and net proceeds of $38.2 million after deducting sales commissions and offering expenses. The Company did not sell any shares of Common Stock under the Sales Agreement during 2019. As of March 9, 2020, $40.4 million of common stock remained available to be sold under the Amended Sales Agreement.

On November 1, 2019 the Company completed a registered direct offering to a healthcare-focused institutional investor priced at-the-market, of (i) 300,000 shares of common stock and accompanying warrants to purchase an aggregate of 300,000 shares of common stock, and (ii) pre-funded warrants to purchase up to an aggregate of 1,830,493 shares of common stock and accompanying warrants to purchase an aggregate of 1,830,493 shares of common stock. Each share of common stock and accompanying common stock warrant were sold together at a combined price of $3.755, and each pre-funded warrant and accompanying common stock warrant were sold together at a combined price of $3.745. Each pre-funded warrant has an exercise price of $0.01 per share, is exercisable immediately and is exercisable until exercised in full. Each common stock warrant has an exercise price of $3.62 per share, is exercisable immediately and expires five years from the date of issuance. The net proceeds to the Company from the offering, after deducting the placement agent ’ s fees and other estimated offering expenses payable by the Company, was approximately $7.1 million. The fair value allocated to the common stock, warrants and pre-funded warrants, less issuance costs, was $0.6 million, $2.9 million and $3.6 million, respectively. 400,000 of the pre-funded warrants were exercised during November 2019.

Also, on January 24, 2020 the Company completed a private placement and registered direct offering of common stock and warrants, which raised $15.9 million in net proceeds. Refer to Note 16 for further information.

7. Stock-based Compensation

In February 2013, the Company ' s board of directors and stockholders approved, effective upon the closing of the IPO, the 2013 Stock Incentive Plan (the " 2013 Plan "). Under the 2013 Plan, the Company may grant incentive stock options, nonstatutory stock options, stock appreciation rights, restricted stock, restricted stock units and other stock-based awards for the purchase of that number of shares of Common Stock equal to the sum of (i) 84,438 shares of Common Stock, (ii) 12,913 shares of Common Stock that were reserved for issuance under the 2006 Plan that remained available for issuance under the 2006 Plan upon the closing of the IPO, (iii) any shares of Common Stock subject to awards under the 2006 Plan which awards expire, terminate or are otherwise surrendered, canceled, forfeited or repurchased by the Company without having been fully exercised or resulting in any Common Stock being issued. In addition, the number of shares of Common Stock that may be issued under the 2013 Plan is subject to automatic annual increases, to be added on January 1 of each year from January 1, 2014 through and including January 1, 2023, equal to the number of shares that is the lesser of (a) 150,000, (b) 4% of the then outstanding shares of Common Stock or (c) an amount determined by the Company ' s board of directors. In January 2020, the number of shares authorized for issuance under the 2013 Plan increased by 138,642 shares.

Terms of stock award agreements, including vesting requirements, are determined by the board of directors, subject to the provisions of the 2013 Plan. Options granted by the Company typically vest over a four year period. Certain of the options are subject to acceleration of vesting in the event of certain change of control transactions. The options are exercisable from the date of grant for a period of ten years. For options granted prior to the Company ' s IPO, the exercise price equaled the estimated fair value of the Common Stock as determined by the board of directors on the date of grant. For options granted subsequent to the Company ' s IPO, the exercise price equaled the closing price of the Company ' s stock on the Nasdaq Global Select Market on the date of grant.

Stock Options

Stock option activity at December 31, 2019 and changes during the year then ended are presented in the table and narrative below (in thousands, except share and per share data):

	Shares	Weighted-Average Exercise Price	Weighted-Average Remaining Contractual Term (years)	Aggregate Intrinsic Value
Options outstanding at December 31, 2018	366,020	$ 223.11	7.45	$ 5
Granted	9,200	17.72		
Exercised	-	-		
Canceled	(197,452)	213.15		
Options outstanding at December 31, 2019	177,768	$ 223.53	5.62	$ -
Options exercisable at December 31, 2019	126,517	$ 277.42	4.92	$ -

The aggregate intrinsic value in the table above represents the difference between the Company ' s closing common stock price on the last trading day during the year ended December 31, 2019 and the exercise price of the options, multiplied by the number of in-the-money options. As of December 31, 2019, there was $3.1 million of total unrecognized stock-based compensation cost related to employee and director unvested stock options granted under the 2006 Plan and the 2013 Plan. The Company expects to recognize that cost over a remaining weighted-average period of 1.9 years.

The Company estimates the fair value of each employee and director stock option award on the grant date using the Black-Scholes option-pricing model based on the following assumptions:

	Years Ended December 31,	
	2019	2018
Volatility factor	98.80%-100.42%	91.45%-97.39%
Expected life (in years)	5.78-6.11	5.31-6.11
Risk-free interest rate	1.43%-2.52%	2.41%-3.04%
Dividend yield	0%	0%

For grants in 2019, expected volatility is based on the historic volatility of the Company ' s common stock and expected term is estimated based on the Company ' s historical data. For grants in 2018, the Company did not have sufficient historical data to support a calculation of volatility and expected life. As such, the Company used a weighted-average volatility considering he Company ' s own volatility and the volatilities of a representative group of publicly traded companies and used the simplified method to estimate expected life of the stock option. The risk-free interest rate used for each grant in 2019 and 2018 is based on a zero-coupon U.S. Treasury instrument with a remaining term of the share-based award.

Compensation cost for stock options and restricted stock units granted to employees and directors is based on the estimated grant-date fair value and is recognized over the vesting period of the applicable option on a straight-line basis. Stock-based compensation expense related to stock options and restricted stock units granted to employees and directors was $6.4 million and $13.0 million during the years ended December 31, 2019 and 2018, respectively.

Using the Black-Scholes option-pricing model, the weighted-average grant date fair values of options granted to employees for the years ended December 31, 2019 and 2018 was $13.75 and $83.54, respectively.

Stock-based compensation expense recognized in the Company ' s consolidated statements of operations during the periods presented was as follows (in thousands):

	Year Ended December 31,	
	2019	2018
Research and development	$ 1,872	$ 5,721
General and administrative	4,563	7,408
Total	$ 6,435	$ 13,129

	Year Ended December 31,	
	2019	2018
Stock options	$ 4,848	$ 10,925
Restricted stock units	1,526	2,089
Employee stock purchase plan	61	115
Total	$ 6,435	$ 13,129

Restricted Stock Units and Performance Stock Units

During 2019 and 2018, the Company awarded employees 127,742 and 32,671 restricted stock units, respectively. These restricted stock units vest in annual increments over one to two years, subject to continued employment with the Company.

During 2019 and 2018 , , the Company issued to certain employees 16,650 and 14,200 performance stock units, respectively, which vest based on service and performance conditions. During the year ended December 31, 2019, 6,650 awards fully vested. Vesting of these awards is contingent on the occurrence of certain milestone events and fulfillment of any remaining service condition. As a result, the related compensation cost is recognized as an expense when achievement of the milestone is considered probable over the remaining requisite service period.

The following table summarizes the restricted stock and performance stock units activity for the year ended December 31, 2019:

	Shares	Weighted Average Grant Date Fair Value
Unvested at December 31, 2018	54,035	$ 60.10
Granted	144,392	22.99
Cancelled	(38,783)	33.76
Vested/Released	(67,663)	38.79
Unvested at December 31, 2019	91,981	$ 28.62

As of December 31, 2019, there was $1.0 million of total unrecognized stock-based compensation expense related to restricted stock units and performance stock units granted under the Plan. The expense is expected to be recognized over a weighted-average period of 1.5 years.

8. Employee Stock Purchase Plan

The ESPP was approved by the Company ' s stockholders on June 12, 2014 and allows the Company to sell an aggregate of 30,000 shares of common stock. The ESPP allows eligible employees to purchase common stock at a price per share equal to 85% of the lower of the fair market value of the common stock at the beginning or end of each period during the term of the ESPP. The offering periods are six months each from May to November and from November to May of each calendar year. Pursuant to the ESPP, the Company sold a total of 14,421 shares of common stock during the year ended December 31, 2019 under the ESPP at purchase prices of $2.09, and $15.05, respectively, which represented 85% of the closing price of the Company ' s common stock on May 14, 2019, and November 14, 2019, respectively. Pursuant to the ESPP, the Company sold a total of 4,307 shares of common stock during the year ended December 31, 2018 under the ESPP at purchase prices of $63.00, and $32.40, respectively, which represented 85% of the closing price of the Company ' s common stock on May 12, 2018, and November 14, 2018, respectively. The Company records stock-based compensation expense under the ESPP based on the fair value of the purchase rights using the Black-Scholes option pricing model. The total stock-based compensation expense recorded as a result of the ESPP was $61,000 and $115,000 during the years ended December 31, 2019 and 2018, respectively.

9. Debt Facility

On November 2, 2018, the Company entered into a loan and security agreement (the Loan Agreement) with Solar Capital Ltd., as collateral agent and lender, and the other lenders named therein (Solar Capital Ltd. and the other lenders are collectively referred to as the Lenders). On August 30, 2019, the Company entered into a payoff letter with the Lenders, pursuant to which the Company agreed to pay off and thereby terminate the Loan Agreement. Pursuant to the payoff letter, the Company paid a total of $30.7 million to the Lenders, representing the principal balance, accrued interest outstanding and a portion of the final fee under the Loan Agreement in repayment of the Company ' s outstanding obligations under the Loan Agreement. The Company recorded a loss from debt extinguishment of $1.6 million as the difference between the net carrying amount of the indebtedness under the Loan Agreement and the amount paid.

In connection with the Loan Agreement and the funding of the initial loan facility, the Company issued to the Lenders warrants to purchase an aggregate of 20,718 shares of the Company ' s common stock, equal to 3.00% of the term loan funded divided by the exercise price of $43.44. The warrants will terminate 10 years from the date of its original

issuance. The warrants were equity classified with a fair value of $0.8 million at issuance and recorded to additional paid in capital.

The Company recorded interest expense related to the loan facility of $2.6 million and $0.6 million for the years ended December 31, 2019 and 2018, respectively.

10. Income Taxes

The Company accounts for income taxes under ASC 740, Accounting for Income Taxes. Deferred income tax assets and liabilities are determined based upon differences between financial reporting and tax bases of assets and liabilities and are measured using the enacted tax rates and laws that will be in effect when the differences are expected to reverse.

Loss before income tax (benefit) provision consists of the following (in thousands):

	Year ended December 31,	
	2019	2018
United States	$ (67,960)	$ (61,046)
Foreign	(2,125)	(11,112)
Total loss before income taxes	$ (70,085)	$ (72,158)

For the years ended December 31, 2019 and 2018 the Company did not have a current or deferred income tax expense or benefit.

A reconciliation of the Federal statutory tax rate of 21% to the Company ' s effective income tax rate follows:

	Year ended December 31,	
	2019	2018
Federal statutory tax rate	(21.00)%	(21.00)%
State taxes, net of federal benefits	(1.70)%	(5.20)%
State tax rate change	2.00%	1.10%
Permanent differences	0.10%	—
Credits	(0.90)%	(1.80)%
Intellectual property transfer	—	(3.80)%
Change in valuation allowance	14.40%	25.20%
Foreign rate differential	0.60%	3.20%
Equity-based compensation	6.40%	2.30%
Other	0.10%	—
Effective tax rate	—%	—%

As of December 31, 2019, the Company had federal net operating loss carryforwards, or NOLs, of approximately $489.1 million and state net operating loss carryforwards of $418.3 million, which are available to reduce future taxable income. Federal net operating loss carryforwards of $383.1 million will expire on various dates through 2037. $106.0 million of the federal net operating loss carryforwards can be carried forward indefinitely. The state net operating loss carryforwards of $418.3 million will expire at various dates through 2039.

As of December 31, 2019, the Company has a carryforward of disallowed interest expense of $2.9 million, which can be carried forward indefinitely.

The Company also had federal tax credits of $8.8 million and state tax credits of $3.1 million, which may be used to offset future tax liabilities. The federal and state tax credit carryforwards will expire at various dates through 2039 and 2034, respectively.

The NOL, tax credit and disallowed interest carryforwards are subject to review and possible adjustment by the Internal Revenue Service and state tax authorities. Net operating loss and tax credit carryforwards may become subject to an annual limitation in the event of certain cumulative changes in the ownership interest of significant shareholders over a three-year period in excess of 50%, as defined under Sections 382 and 383 of the Internal Revenue Code, respectively, as well as similar state provisions. This could limit the amount of tax attributes that can be utilized annually to offset future taxable income or tax liabilities. The amount of the annual limitation is determined based on the value of the Company immediately prior to the ownership change. Subsequent ownership changes may further affect the limitation in future years. In addition, the Company has not, as yet , conducted a study of research and development (" R&D ") credit carryforwards. This study may result in an adjustment to the Company ' s R&D credit carryforwards. Any adjustment as a result of such study would be fully offset by a decrease in the Company ' s valuation allowance.

The principal components of the Company ' s deferred tax assets are as follows (in thousands):

	Year ended December 31,	
	2019	2018
Deferred tax assets:		
Net operating loss carryforwards	$ 128,773	$ 114,097
Research and development credits and carryforwards	11,270	10,649
Equity-based compensation	4,104	8,836
Accrued expenses and other	414	270
Intangibles	3,243	4,578
Interest limitation carryforward	657	-
Lease liability	1,136	-
Deferred tax assets	149,597	138,430
Deferred tax liabilities:		
Right-of-use asset	(1,100)	-
Deferred tax liabilities	(1,100)	-
Less valuation allowance	(148,497)	(138,430)
Net deferred tax assets	$ —	$ —

ASC 740 requires a valuation allowance to reduce the deferred tax assets reported, if based on the weight of available evidence, it is more likely than not that some portion or all of the deferred tax assets will not be realized. After consideration of all the evidence, both positive and negative, the Company has recorded a valuation allowance against its deferred tax assets at December 31, 2019 and 2018, respectively, because the Company ' s management has determined that is it more likely than not that these assets will not be realized. The $10.1 million increase in the valuation allowance in 2019 primarily relates to the loss incurred by the Company in this period.

ASC 740 clarifies the accounting for uncertainty in income taxes recognized in an enterprise ' s financial statement by prescribing the minimum recognition threshold and measurement of a tax position taken or expected to be taken in a tax return. The Company had gross tax-effected unrecognized tax benefits of $1.4 million and $1.3 million at December 31, 2019 and 2018, respectively. Unrecognized tax benefits represent tax positions for which reserves have been established. A full valuation allowance has been provided against the Company ' s deferred tax assets, so that the effect of any unrecognized tax benefits would simply be to reduce the gross amount of the deferred tax asset and the corresponding valuation allowance. The Company anticipates that the amount of unrecognized tax benefits recorded will not change in the next twelve months.

As of December 31, 2019 and 2018, the Company had no accrued interest or penalties related to uncertain tax positions.

The aggregate changes in gross unrecognized tax benefits during the years ended December 31, 2019 and 2018 were as follows (in thousands):

	Year ended December 31,	
	2019	2018
Balance at beginning of year	$ 1,291	$ 1,107
Increases for tax positions taken during current period	73	130
Increases for tax positions taken in prior periods	—	54
Decreases for tax positions taken during current period	—	—
Decreases for tax positions taken in prior periods	—	—
Balance at end of year	$ 1,364	$ 1,291

The Company is currently open to examination under the statute of limitations by the Internal Revenue Service and state jurisdictions for the tax years ended 2016 through 2018. Carryforward tax attributes generated in years past may still be adjusted upon future examination if they have or will be used in a future period. The Company is currently not under examination by the Internal Revenue Service or any other jurisdictions for any tax years.

11. Commitments and Contingencies

Lease Commitments

The Company ' s leases consist of office equipment and office and laboratory space in Watertown, MA. On March 24, 2015, the Company amended its existing operating lease to expand its existing premises by an additional 13,711 square feet of office and laboratory space for a total of 29,610 square feet.

On June 18, 2015, the Company further amended its existing operating lease to expand its leased premises by an additional 7,828 square feet of office and laboratory space for a total of 37,438 square feet.

In the third quarter of 2016, the Company entered into a sublease with respect to a portion of its principal facilities with an unrelated third party. This sublease was terminated in August 2019.

On November 29, 2018, the Company amended its existing operating lease to extend the lease term through November 30, 2022 for all of its existing operating leases.

On January 31, 2020, the Company amended its lease of office and laboratory space in Watertown, MA to reduce the square feet from approximately 37,438 square feet to approximately 21,539 square feet.

On January 1, 2019, the Company adopted ASU 2016-02, Leases. Refer to Note 2, " *Summary of Significant Accounting Policies* " herein for additional disclosures.

The Company identified and assessed significant assumptions in recognizing the right-of-use asset and lease liability as follows:

- *Incremental borrowing rate* - The Company ' s lease agreements do not provide implicit rates. The Company has one outstanding loan facility which was utilized to derive the Company ' s incremental borrowing rate for its existing leases at the transition date. The Company estimated its incremental borrowing rate based on its credit quality indicators from its outstanding loan facility. The Company compared its incremental borrowing rate to rates available in the market for similar borrowings, and adjusted these rates based on the impact of collateral over the term of the lease to substantiate the incremental borrowing rate applied to its leases at the transition date.

- *Lease and non-lease components* – The Company is required to pay fixed fees for operating expenses in addition to monthly base rent for certain operating leases. The amounts of additional rent associated with these fees are

considered non-lease components. The Company has elected the practical expedient which allows non-lease components to be combined with lease components and will therefore include these additional rent amounts in its lease payments. Any variable components of these operating costs are excluded from lease payments and are recognized in the period incurred.

The components of lease expense were as follows:

	Year ended December 31, 2019
Operating lease cost	$ 1,897
Variable lease cost	1,203
Total lease cost	$ 3,100
Weighted-average remaining lease term (years)	2.90
Weighted-average discount rate	9.25%

Cash paid for amounts included in the measurement of the lease liabilities included in the operating cash flows were $1.8 million and $1.4 million for the years ended December 31, 2019 and 2018 respectively.

As of December 31, 2019, the aggregate minimum future rent payments under the lease agreement are as follows (in thousands):

	Total
2020	$ 1,916
2021	1,950
2022	1,785
Thereafter	—
Less: Imputed interest	(656)
Present value of lease payments	$ 4,995

The Company recorded $1.5 million and $1.4 million in rent expense for the years ended December 31, 2019 and 2018, respectively

12. Employee Benefit Plan

In 2007, the Company established the Tetraphase Pharmaceuticals, Inc. 401(k) Plan (the “ 401(k) Plan ”) for its employees, which is designed to be qualified under Section 401(k) of the Internal Revenue Code. Eligible employees are permitted to contribute to the 401(k) Plan within statutory and 401(k) Plan limits. During 2014, the Company began to make matching contributions of 50% of the first 6% of employee contributions. The Company made matching contributions of $0.5 million and $0.4 million for the years ended December 31, 2019 and 2018, respectively.

13. Legal Proceedings

On February 7, 2020, DHL Supply Chain (Netherlands) B.V (“ DHL ”) made an arbitration demand against the Company with Foundation UNUM. The arbitration demand alleges breach of contract by the Company under a letter of intent entered into between the parties in August 2018 between the parties, and DHL seeks full indemnification for all damages and costs resulting from the alleged breach by the Company, including but not limited to loss of profit, which DHL calculates at 2,335,000 Euros. The Company does not believe it has breached any contract with DHL and plans to engage in a vigorous defense against such claims. No amounts have been accrued for this matter at December 31, 2019.

14. Corporate Restructuring Charges

On June 10, 2019, the Company announced a restructuring of its organization, including a 20% reduction in headcount, designed to focus its cash resources on commercializing Xerava. This reorganization included the elimination of its internal research function and an exploration of out-licensing opportunities for all of its pipeline of early-stage antibiotics and oncology product candidates. The Company incurred total costs associated with the restructuring of $2.4 million, all of which the Company incurred during 2019. The restructuring charges consist primarily of severance costs and asset impairment costs, offset in part by stock-based compensation adjustments associated with award modifications.

The restructuring charges recorded during the year ended December 31, 2019 and the related liability balance as of December 31, 2019 for each major type of cost associated with this restructuring plan are as follows:

	Restructuring Expense	Cash payments	Non-cash expense	Restructuring Liability at December 31, 2019
Employee severance and related costs	$ 2,130	$ (1,549)	$ —	$ 581
Asset impairments	335	-	(335)	-
Compensation expense	(97)	-	97	-
	$ 2,368	$ (1,549)	$ (238)	$ 581

15. Quarterly Results (Unaudited)

	Three Months Ended			
	March 31, 2019	June 30, 2019	September 30, 2019	December 31, 2019
	(in thousands, except per share data) (unaudited)			
Revenues:				
Product revenue, net	$ 341	$ 796	$ 978	$ 1,460
License and collaboration revenue	—	—	2,000	—
Government revenue	932	277	362	230
Total revenue	1,273	1,073	3,340	1,690
Expenses:				
Cost of revenue - product sales	164	307	882	1,334
Cost of revenue - intangible asset amortization	98	99	98	98
Research and development	6,737	8,166	5,348	2,534
Selling, general and administrative	13,314	15,113	11,350	9,266
Total expenses	20,313	23,685	17,678	13,232
Loss from operations	(19,040)	(22,612)	(14,338)	(11,542)
Other income and expenses				
Loss on extinguishment of debt	—		(1,568)	—
Other income	—	250	—	83
Interest income	507	416	252	87
Interest expense	(955)	(975)	(650)	—
Net loss	$ (19,488)	$ (22,921)	$ (16,304)	$ (11,372)
Net loss per share—basic and diluted	$ (7.25)	$ (8.45)	$ (6.00)	$ (2.75)

	Three Months Ended			
	March 31, 2018	June 30, 2018	September 30, 2018	December 31, 2018
	(in thousands, except per share data) (unaudited)			
Revenue:				
Product revenue, net	$ —	$ —	$ —	$ 178
License and collaboration revenue	—	9,500	—	3,177
Government revenue	1,891	2,079	1,151	928
Total revenue	1,891	11,579	1,151	4,283
Expenses:				
Cost of revenue - product sales	—	—	—	130
Cost of revenue - intangible asset amortization	—	—	—	98
Research and development	18,127	14,370	11,665	10,717
Selling, general and administrative	5,705	7,165	9,481	14,727
Total expenses	23,832	21,535	21,146	25,672
Loss from operations	(21,941)	(9,956)	(19,995)	(21,389)
Interest income	365	413	437	532
Interest expense	—	—	—	(624)
Net loss	$ (21,576)	$ (9,543)	$ (19,558)	$ (21,481)
Net loss per share—basic and diluted	$ (8.36)	$ (3.68)	$ (7.39)	$ (8.00)

16. Subsequent Events

On January 24, 2020, the Company completed a private placement with Armistice Capital, LLC, a healthcare-focused institutional investor priced at-the-market of (i) 1,270,000 shares of common stock and accompanying warrants to purchase an aggregate of 1,270,000 shares of common stock, and (ii) pre-funded warrants to purchase up to an aggregate of 2,063,334 shares of common stock and accompanying warrants to purchase up to an aggregate of 2,063,334 shares of common stock. Each share of common stock and accompanying common stock warrant were sold together at a combined price of $3.00, and each pre-funded warrant and accompanying common stock warrant were sold together at a combined price of $2.999, for gross proceeds of approximately $10 million. Each pre-funded warrant had an exercise price of $0.001 per share, was exercisable immediately and was exercisable until all of the pre-funded warrants are exercised in full. Each common stock warrant had an exercise price of $2.87 per share, was exercisable immediately and will expire five years from the date of issuance.

Also on January 24, 2020, the Company completed a registered direct offering to certain healthcare-focused institutional investors priced at-the-market, of (i) 2,380,105 shares of common stock and accompanying warrants to purchase up to an aggregate of 2,380,105 shares of common stock, and (ii) pre-funded warrants to purchase up to an aggregate of 120,000 shares of common stock and accompanying warrants to purchase up to an aggregate of 120,000 shares of common stock. Each share of common stock and accompanying common stock warrant were sold together at a combined price of $3.00, and each pre-funded warrant and accompanying common stock warrant were sold together at a combined price of $2.999, for gross proceeds of approximately $7.5 million. Each pre-funded warrant had an exercise price of $0.001 per share, was exercisable immediately and was exercisable until all of the pre-funded warrants are exercised in full. Each common stock warrant had an exercise price of $2.87 per share, was exercisable immediately and will expire five years from the date of issuance.

The net proceeds to the Company from the registered direct offering and the concurrent private placement, after deducting the placement agent ’ s fees and other estimated offering expenses payable by the Company, were approximately $15.9 million.

On January 31, 2020, the Company amended its lease of office and laboratory space in Watertown, MA to reduce the square feet from approximately 37,438 square feet to approximately 21,539 square feet. This amendment is expected to reduce the Company ' s lease and non-lease expense related to its office lease by approximately $1.3 million annually.

SELECTED UNAUDITED PRO FORMA CONDENSED COMBINED FINANCIAL INFORMATION

The following table presents selected unaudited pro forma combined financial information about AcelRx's consolidated balance sheet and statements of operations, after giving effect to the Merger with Tetraphase . The information under "Selected Unaudited Pro Forma Condensed Combined Statements of Operations" in the table below assumes the Merger had been consummated on January 1, 2019, the beginning of the earliest period presented. The information under "Selected Unaudited Pro Forma Condensed Combined Balance Sheet Data" in the table below assumes the Merger had been consummated on December 31, 2019.

The unaudited pro forma condensed combined financial information includes adjustments which are preliminary and may be revised. These revisions may be material. In addition, the unaudited pro forma condensed combined financial information does not reflect any cost savings or associated costs to achieve such savings from operating efficiencies, synergies, debt refinancing or other restructuring that may result from the Merger. The unaudited pro forma condensed combined financial information is not necessarily indicative of results that actually would have occurred or that may occur in the future had the Merger been completed on the dates indicated.

The accompanying unaudited pro forma condensed combined financial information should be read in conjunction with (a) the audited consolidated financial statements of AcelRx contained in its Annual Report on Form 10-K for the year ended December 31, 2019 and (b) the audited consolidated financial statements of Tetraphase for the year ended December 31, 2019 .

(in thousands, except share and per share data)	Year Ended December 31, 2019 (Unaudited)
Selected Unaudited Pro Forma Condensed Combined Statements of Operations	
Total revenue	$ 9,665
Operating costs and expenses:	
Cost of goods sold	12,207
Research and development	27,553
Selling, general and administrative	94,070
Total operating costs and expenses	133,830
Loss from operations	(124,165)
Interest expense	(5,115)
Interest income and other income (expense), net	3,761
Non-cash interest income (expense) on liability related to sale of future royalties	1,337
Loss on extinguishment of debt	(1,568)
Net loss before income taxes	$ (125,750)
Provision (benefit) for income taxes	3
Net loss	$ (125,753)
Net loss per share of common stock, basic	$ (1.35)
Shares used in computing net loss per share of common stock, basic	93,170,280
Net loss per share of common stock, diluted	$ (1.35)
Shares used in computing net loss per share of common stock, diluted	93,170,280

(in thousands)	As of December 31, 2019 (Unaudited)
Selected Unaudited Pro Forma Condensed Combined Balance Sheet Data	
Cash, cash equivalents and short-term investments	$ 70,861
Working capital	69,890
Total assets	124,887
Long-term debt	25,147
Liability related to sale of future royalties	92,035
Accumulated deficit	(402,493)
Total stockholders' (deficit) equity	(28,005)