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

FORM 10-Q

(Mark One)

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

For the quarterly period ended March 31, 2017

OR

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

For the transition period from to

Commission file number: 001-37526

Zynerba Pharmaceuticals, Inc.
(Exact name of registrant as specified in its charter)

Delaware	**26-0389433**
(State or other jurisdiction of incorporation or organization)	(I.R.S. Employer Identification Number)
80 W. Lancaster Avenue, Suite 300 Devon, PA	**19333**
(Address of principal executive offices)	(Zip Code)

(484) 581-7505
(Registrant's telephone number, including area code)

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

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

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

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

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

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

As of May 5, 2017, there were 13,249,779 shares of Common Stock, $0.001 par value per share, outstanding.

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CAUTIONARY NOTE REGARDING FORWARD-LOOKING STATEMENTS

Statements made in this Quarterly Report that are not statements of historical or current facts, such as those under the heading "Management's Discussion and Analysis of Financial Condition and Results of Operations," are "forward-looking statements" within the meaning of the Private Securities Litigation Reform Act of 1995. Forward-looking statements discuss our current expectations and projections relating to our financial condition, results of operations, plans, objectives, future performance and business. These statements may be preceded by, followed by or include the words "aim," "anticipate," "believe," "estimate," "expect," "forecast," "intend," "outlook," "plan," "potential," "project," "projection," "seek," "may," "could," "would," "will," "should," "can," "can have," "likely," the negatives thereof and other words and terms of similar meaning.

Forward-looking statements are inherently subject to risks, uncertainties and assumptions; they are not guarantees of performance. You should not place undue reliance on these statements. We have based these forward-looking statements on our current expectations and projections about future events. Although we believe that our assumptions made in connection with the forward-looking statements are reasonable, we cannot assure you that the assumptions and expectations will prove to be correct.

You should understand that the following important factors could affect our future results and could cause those results or other outcomes to differ materially from those expressed or implied in our forward-looking statements:

- our estimates regarding expenses, future revenue, capital requirements and timing and availability of and the need for additional financing;
- the success and timing of our preclinical studies and clinical trials;
- the potential results of preclinical studies and clinical trials for ZYN002 and ZYN001;
- our dependence on third parties in the conduct of our preclinical studies and clinical trials;
- the difficulties and expenses associated with obtaining and maintaining regulatory approval of ZYN002 and ZYN001;
- our plans and ability to develop and commercialize ZYN002 and ZYN001;
- the successful development of our commercialization capabilities, including sales and marketing capabilities;
- the size and growth of the potential markets for ZYN002 and ZYN001, the rate and degree of market acceptance of ZYN002 and ZYN001 and our ability to serve those markets;
- legal and regulatory developments in the United States and foreign countries;
- the success of competing therapies and products that are or become available;
- our ability to limit our exposure under product liability lawsuits;
- our use of the proceeds from our initial public offering, or IPO, and any subsequent offerings, including our "at-the-market," or ATM, offerings and our recent follow-on offering;
- our ability to obtain and maintain intellectual property protection for ZYN002 and ZYN001;
- recently enacted and future legislation regarding the healthcare system, including changes to the Affordable Care Act that may be made in the 115th United States Congress;
- our ability to obtain and maintain third-party manufacturing for our product candidates on commercially reasonable terms;
- the performance of third parties upon which we depend, including third-party contract research organizations, or CROs, and third-party manufacturers;
- our ability to recruit or retain key scientific or management personnel or to retain our executive officers; and
- the other risks, uncertainties and factors discussed in our Annual Report on Form 10-K for the fiscal year ended December 31, 2016, or our 2016 Annual Report, under the caption "Item 1.A Risk Factors".

In light of these risks and uncertainties, expected results or other anticipated events or circumstances discussed in this Form 10-Q (including the exhibits hereto) might not occur. We undertake no obligation, and specifically decline any obligation, to publicly update or revise any forward-looking statements, even if experience or future developments make it clear that projected results expressed or implied in such statements will not be realized, except as may be required by law.

PART I – FINANCIAL INFORMATION

Item 1. Consolidated Financial Statements (Unaudited)

ZYNERBA PHARMACEUTICALS, INC.
CONSOLIDATED BALANCE SHEETS
(UNAUDITED)

	March 31, 2017	December 31, 2016
Assets		
Current assets:		
Cash and cash equivalents	$ 77,493,189	$ 30,965,791
Incentive and tax receivables	3,867,811	3,613,943
Prepaid expenses and other current assets	2,002,966	1,830,958
Total current assets	83,363,966	36,410,692
Property and equipment, net	198,197	143,382
Incentive and tax receivables	1,141,533	—
Other assets	200	200
Total assets	$ 84,703,896	$ 36,554,274
Liabilities and Stockholders' Equity		
Current liabilities:		
Accounts payable	$ 996,866	$ 1,848,084
Accrued expenses	5,110,490	4,284,907
Deferred grant revenue	833,975	833,975
Total current liabilities	6,941,331	6,966,966
Stockholders' equity:		
Preferred stock, $0.001 par value; 10,000,000 shares authorized; no shares issued or outstanding	—	—
Common stock, $0.001 par value; 200,000,000 shares authorized; 13,214,825 shares issued and outstanding at March 31, 2017 and 9,994,825 shares issued and outstanding at December 31, 2016	13,215	9,995
Additional paid-in capital	130,976,933	75,545,875
Accumulated deficit	(53,227,583)	(45,968,562)
Total stockholders' equity	77,762,565	29,587,308
Total liabilities and stockholders' equity	$ 84,703,896	$ 36,554,274

See accompanying notes to unaudited consolidated financial statements.

ZYNERBA PHARMACEUTICALS, INC.
CONSOLIDATED STATEMENTS OF OPERATIONS
(UNAUDITED)

	Three months ended March 31,	
	2017	2016
Revenue	$ —	$ 7,250
Operating expenses:		
Research and development	5,491,455	2,568,989
General and administrative	2,211,793	1,680,130
Total operating expenses	7,703,248	4,249,119
Loss from operations	(7,703,248)	(4,241,869)
Other income (expense):		
Interest income	76,885	12,377
Foreign exchange gain (loss)	367,342	(23,148)
Total other income (expense)	444,227	(10,771)
Loss before income taxes	(7,259,021)	(4,252,640)
Income tax expense	—	28,734
Net loss	$ (7,259,021)	$ (4,281,374)
Net loss per share basic and diluted	$ (0.60)	$ (0.49)
Basic and diluted weighted average shares outstanding	12,067,453	8,823,951

See accompanying notes to unaudited consolidated financial statements.

ZYNERBA PHARMACEUTICALS, INC.
CONSOLIDATED STATEMENT OF STOCKHOLDERS' EQUITY
(UNAUDITED)

	Stockholders' equity				
	Common stock		Additional paid-capital	Accumulated deficit	Total stockholders' equity
	Shares	Amount			
Balance at December 31, 2016	**9,994,825**	**$ 9,995**	**$ 75,545,875**	**$ (45,968,562)**	**$ 29,587,308**
Issuance of common stock, net of issuance costs	3,220,000	3,220	54,242,359	—	54,245,579
Stock-based compensation expense	—	—	1,188,699	—	1,188,699
Net loss	—	—	—	(7,259,021)	(7,259,021)
Balance at March 31, 2017	**13,214,825**	**$ 13,215**	**$ 130,976,933**	**$ (53,227,583)**	**$ 77,762,565**

See accompanying notes to unaudited consolidated financial statements.

ZYNERBA PHARMACEUTICALS, INC.
CONSOLIDATED STATEMENTS OF CASH FLOWS
(UNAUDITED)

	Three months ended March 31,	
	2017	2016
Cash flows from operating activities:		
Net loss	$ (7,259,021)	$ (4,281,374)
Adjustments to reconcile net loss to net cash used in operating activities:		
Depreciation	20,419	13,558
Stock-based compensation	1,188,699	763,799
Changes in operating assets and liabilities:		
Incentive and tax receivables	(1,395,401)	(352,780)
Prepaid expenses and other assets	(172,008)	186,027
Deferred grant revenue	—	(7,250)
Accounts payable	(851,218)	185,456
Accrued expenses	818,962	(1,182,268)
Net cash used in operating activities	(7,649,568)	(4,674,832)
Cash flows from investing activities:		
Purchases of property and equipment	(68,613)	(28,535)
Net cash used in investing activities	(68,613)	(28,535)
Cash flows from financing activities:		
Proceeds from the issuance of common stock, net of offering costs	54,245,579	—
Net cash provided by financing activities	54,245,579	—
Net increase (decrease) in cash and cash equivalents	46,527,398	(4,703,367)
Cash and cash equivalents at beginning of period	30,965,791	41,513,060
Cash and cash equivalents at end of period	$ 77,493,189	$ 36,809,693
Supplemental disclosures of cash flow information:		
Change in property and equipment acquired but not paid	6,621	—

See accompanying notes to unaudited consolidated financial statements

ZYNERBA PHARMACEUTICALS, INC.
NOTES TO UNAUDITED CONSOLIDATED FINANCIAL STATEMENTS

(1) Nature of Business and Liquidity

Zynerba Pharmaceuticals, Inc., together with its subsidiary, Zynerba Pharmaceuticals Pty Ltd (the "Company", "we"), is a clinical stage specialty pharmaceutical company dedicated to developing and commercializing innovative transdermal cannabinoid treatments for patients with high unmet needs. The Company was incorporated on January 31, 2007 under the laws of the State of Delaware as AllTranz, Inc. and changed its name to Zynerba Pharmaceuticals, Inc. in August 2014. The Company operated in Lexington, Kentucky until October 2014 when it moved its operations to Pennsylvania.

The Company has incurred losses and negative cash flows from operations since inception and has an accumulated deficit of $53.2 million as of March 31, 2017. The Company anticipates incurring additional losses until such time, if ever, that it can generate significant revenue from its product candidates currently in development. The Company's primary source of liquidity has been the issuance of equity securities and convertible promissory notes.

In the first quarter of 2017, the Company completed a follow-on public offering, selling 3,220,000 shares at an offering price of $18.00 per share resulting in gross proceeds of $58.0 million. Net proceeds received after deducting underwriting and commissions and offering expenses were $54.2 million.

Management believes that cash and cash equivalents as of March 31, 2017 are sufficient to develop five Phase 3-ready programs and, assuming feedback from the U.S. Food and Drug Administration supports a decision to proceed, initiate at least one Phase 3 program and fund operations and capital requirements into 2019. Substantial additional financings will be needed by the Company to fund its operations, to complete clinical development of and to commercially develop its product candidates. There is no assurance that such financing will be available when needed or on acceptable terms.

The Company is subject to those risks associated with any clinical stage pharmaceutical company that has substantial expenditures for research and development. There can be no assurance that the Company's research and development projects will be successful, that products developed will obtain necessary regulatory approval, or that any approved product will be commercially viable. In addition, the Company operates in an environment of rapid technological change and is largely dependent on the services of its employees and consultants.

(2) Summary of Significant Accounting Policies

a. Basis of Presentation

The accompanying unaudited interim consolidated financial statements of the Company and its subsidiary have been prepared in accordance with U.S. generally accepted accounting principles ("GAAP") for interim financial information and with the instructions to Form 10-Q and Article 10 of Regulation S-X. The interim unaudited consolidated financial statements have been prepared on the same basis as the consolidated financial statements as of and for the year ended December 31, 2016 included in the Company's Annual Report on Form 10-K for the year ended December 31, 2016 ("2016 Annual Report"), filed with the Securities and Exchange Commission ("SEC"). In the opinion of management, the accompanying consolidated financial statements of the Company include all normal and recurring adjustments (which consist primarily of accruals, estimates and assumptions that impact the financial statements) considered necessary to present fairly the Company's financial position as of March 31, 2017 and its results of operations and cash flows for the three months ended March 31, 2017 and 2016. Operating results for any interim period are not necessarily indicative of results for any future interim period or for the entire year. The accompanying unaudited interim consolidated financial statements should be read in conjunction with the consolidated financial statements and related notes included in the Company's 2016 Annual Report.

b. 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 and liabilities and disclosures of contingent assets and liabilities at the date of the financial statements and reported amounts of revenue and expenses during the reporting period. Actual results could differ from such estimates.

ZYNERBA PHARMACEUTICALS, INC.
NOTES TO UNAUDITED CONSOLIDATED FINANCIAL STATEMENTS (Continued)

c. Incentive and Tax Receivables

The Company's subsidiary, Zynerba Pharmaceuticals Pty Ltd (the "Subsidiary"), is incorporated in Australia. The Subsidiary is eligible to participate in an Australian research and development tax incentive program. As part of this program, the Subsidiary is eligible to receive a cash refund from the Australian Taxation Office for a percentage of the research and development costs expended by the Subsidiary in Australia. The Company's estimate of the amount of cash refund it expects to receive related to the Australian research and development tax incentive program is included in "Incentive and tax receivables" in the accompanying consolidated balance sheets. As of March 31, 2017, the Company's estimate of the amount of cash refund it expects to receive in 2017 for 2016 eligible spending as part of this incentive program was $3.5 million and was recorded as a current asset. The Company's estimate of the amount of cash refund it expects to receive in 2018 for 2017 eligible spending through March 31, 2017 was $1.1 million and was recorded as a non-current asset.

In addition, the Subsidiary incurs Goods and Services Tax ("GST") on services provided by Australian vendors. As an Australian entity, the Subsidiary is entitled to a refund of the GST paid. The Company's estimate of the amount of cash refund it expects to receive related to GST paid is included in "Incentive and tax receivables" in the accompanying consolidated balance sheets. As of March 31, 2017, the current portion of incentive and tax receivables included $0.4 million for GST incurred on expenses payable or paid to Australian vendors during the three months ended March 31, 2017.

d. Prepaid Expenses and Other Assets

Prepaid expenses primarily consist of prepaid study and clinical trial expenses, which were $1.7 million and $1.5 million as of March 31, 2017 and December 31, 2016, respectively. Other assets primarily consist of noncurrent research and grant revenue remitted to third-party research organizations.

e. Research and Development

Research and development costs are expensed as incurred and are primarily comprised of external research and development expenses incurred under arrangements with third parties, such as contract research organizations ("CROs"), consultants and employee-related expenses including salaries and benefits. At the end of each reporting period, the Company compares the payments made to each service provider to the estimated progress towards completion of the related project. Factors that the Company considers in preparing these estimates include the number of patients enrolled in studies, milestones achieved and other criteria related to the efforts of its vendors. These estimates will be subject to change as additional information becomes available. Depending on the timing of payments to vendors and estimated services provided, the Company will record net prepaid or accrued expenses related to these costs. Research and development expenses are recorded net of expected refunds of eligible research and development costs paid to Australian vendors pursuant to the Australian research and development tax incentive program and Australian GST incurred on services provided by Australian vendors.

f. Net Loss per Share

Basic net loss per share is determined using the weighted average number of shares of common stock outstanding during each period. Diluted net income per share includes the effect, if any, from the potential exercise or conversion of securities, such as convertible preferred stock, restricted stock, and stock options, which would result in the issuance of incremental shares of common stock. Basic and dilutive computations of net loss per share are the same in periods in which a net loss exists as the dilutive effects of convertible preferred stock, restricted stock and stock options would be anti-dilutive.

The following potentially dilutive securities outstanding as of March 31, 2017 and 2016 have been excluded from the computation of diluted weighted average shares outstanding, as their effects on net loss per share for the periods presented would be anti-dilutive:

	March 31,	
	2017	2016
Stock options	2,232,843	1,637,399
Unvested restricted stock	217,459	362,428
	2,450,302	1,999,827

h. Recent Accounting Pronouncements

In February 2016, the Financial Accounting Standards Board ("FASB") issued Accounting Standards Update ("ASU") No. 2016-02, *Leases*, which requires that lease arrangements longer than 12 months result in an entity recognizing an asset and liability. The pronouncement is effective for interim and annual periods beginning after December 15, 2018 with early adoption permitted. The adoption of this guidance is not expected to have a material impact on the Company's consolidated financial statements.

In March 2016, the FASB issued ASU No. 2016-09, *Improvements to Employee Share-Based Payment Accounting*, which is intended to simplify the accounting and reporting for employee share-based payment transactions. The pronouncement is effective for interim and annual periods beginning after December 31, 2016 with early adoption permitted. The adoption of the guidance in ASU No. 2016-09 in the first quarter of 2017 did not have a material impact on the Company's consolidated financial statements.

In August 2016, the FASB issued ASU No. 2016-15, *Classification of Certain Cash Receipts and Cash Payments*, which provides specific guidance related to eight cash flow classification issues. The pronouncement is effective for interim and annual periods beginning after December 15, 2017 with early adoption permitted. The adoption of this guidance is not expected to have a material impact on the Company's consolidated financial statements.

In November 2016, the FASB issued ASU No. 2016-18, *Restricted Cash*, which requires changes in restricted cash and restricted cash equivalents to be explained on the statement of cash flows by including restricted cash and restricted cash equivalents in the beginning-of-period and end-of-period total cash and cash equivalents shown on the statement of cash flows. The pronouncement is effective for interim and annual periods beginning after December 15, 2017 with early adoption permitted. The adoption of this guidance is not expected to have a material impact on the Company's consolidated financial statements.

(3) Fair Value Measurements

The Company measures certain assets and liabilities at fair value in accordance with Accounting Standards Codification ("ASC") 820, *Fair Value Measurements and Disclosures*. ASC 820 defines fair value as the price that would be received to sell an asset or paid to transfer a liability (the exit price) in an orderly transaction between market participants at the measurement date. The guidance in ASC 820 outlines a valuation framework and creates a fair value hierarchy in order to increase the consistency and comparability of fair value measurements and the related disclosures. In determining fair value, the Company maximizes the use of quoted prices and observable inputs. Observable inputs are inputs that market participants would use in pricing the asset or liability based on market data obtained from independent sources. The fair value hierarchy is broken down into three levels based on the source of inputs as follows:

Level 1 — Valuations based on unadjusted quoted prices in active markets for identical assets or liabilities.

Level 2 — Valuations based on observable inputs and quoted prices in active markets for similar assets and liabilities.

Level 3 — Valuations based on unobservable inputs and models that are supported by little or no market activity.

The following fair value hierarchy tables present information about each major category of financial assets measured at fair value on a recurring basis as of March 31, 2017 and December 31, 2016:

	Carrying value as of March 31, 2017	Fair Value Measurement as of March 31, 2017		
		Level 1	Level 2	Level 3
Cash equivalents (money market accounts)	$ 73,927,589	$ 73,927,589	$ —	$ —
Certificate of deposit (included in prepaid expenses and other current assets)	20,000	20,000	—	—
	$ 73,947,589	$ 73,947,589	$ —	$ —

	Carrying value as of December 31, 2016	Fair Value Measurement as of December 31, 2016		
		Level 1	Level 2	Level 3
Cash equivalents (money market accounts)	$ 30,485,212	$ 30,485,212	$ —	$ —
Certificate of deposit (included in prepaid expenses and other current assets)	20,000	20,000	—	—
	$ 30,505,212	$ 30,505,212	$ —	$ —

(4) Prepaid Expenses and Other Current Assets

Prepaid expenses and other current assets consisted of the following as March 31, 2017 and December 31, 2016:

	March 31, 2017	December 31, 2016
Prepaid development expenses	$ 1,675,248	$ 1,473,402
Prepaid insurance	193,049	321,463
Other current assets	134,669	36,093
Total prepaid expenses and other current assets	$ 2,002,966	$ 1,830,958

Included in prepaid development expenses above is research and grant revenue remitted to third-party research organizations of $0.8 million as March 31, 2017 and December 31, 2016, respectively, that will be recognized as research projects progress and expenses are incurred.

(5) Property and Equipment

Property and equipment consisted of the following as of March 31, 2017 and December 31, 2016:

	Estimated useful life (in years)	March 31, 2017	December 31, 2016
Equipment	2-5	$ 85,417	$ 85,417
Computer equipment	3-5	30,319	27,111
Furniture and fixtures	5	171,757	99,731
Total cost		287,493	212,259
Less accumulated depreciation		(89,296)	(68,877)
Property and equipment, net		$ 198,197	$ 143,382

Depreciation expense was $20,419 and $13,558 for the three months ended March 31, 2017 and 2016, respectively.

ZYNERBA PHARMACEUTICALS, INC.
NOTES TO UNAUDITED CONSOLIDATED FINANCIAL STATEMENTS (Continued)

(6) Accrued Expenses

Accrued expenses consisted of the following as of March 31, 2017 and December 31, 2016:

	March 31, 2017	December 31, 2016
Accrued compensation	$ 443,749	$ 1,349,108
Accrued research and development	4,124,019	2,628,681
Other	542,722	307,118
Total accrued expenses	$ 5,110,490	$ 4,284,907

(7) Common Stock

In the first quarter of 2017, the Company completed an additional follow-on public offering, selling 3,220,000 shares at an offering price of $18.00 per share resulting in gross proceeds of $58.0 million. Net proceeds received after deducting underwriting and commissions and offering expenses were $54.2 million.

(8) Stock-Based Compensation

The Company maintains the Amended and Restated 2014 Omnibus Incentive Compensation Plan, as amended ("2014 Plan"), which allows for the granting of incentive stock options, nonqualified stock options, stock appreciation rights, stock awards, stock units, performance units and other stock-based awards to employees, officers, non-employee directors, consultants, and advisors. In addition, the 2014 Plan provides selected executive employees with the opportunity to receive bonus awards that are considered qualified performance-based compensation. The 2014 Plan is subject to automatic annual increases in the number of shares authorized for issuance under the 2014 Plan on the first trading day of January each year, commencing on January 1, 2017, equal to the lesser of 1.5 million shares or 10% of the number of shares of common stock outstanding on the last trading day of December of the preceding year. As of January 1, 2017, the number of shares of common stock that may be issued under the 2014 Plan was automatically increased by 999,482 shares, increasing the number of shares of common stock available for issuance under the 2014 Plan to 3,449,482 shares. As of March 31, 2017, 770,800 shares are available for issuance under the 2014 Plan.

Options issued under the 2014 Plan have a contractual life of 10 years and may be exercisable in cash or as otherwise determined by the board of directors. The Company has granted options to employees and non-employee directors. Stock options granted to employees vest 25% upon the first anniversary of the grant date and the balance of unvested options vests in quarterly installments over the remaining three years. Stock options granted annually to non-employee directors vest on the earlier of the one-year anniversary of the grant date, or the date of the Company's next annual stockholders' meeting that occurs after the grant date.

For the three months ended March 31, 2017 and 2016, the Company recorded stock-based compensation expense related to its stock option grants and restricted stock awards, as follows:

	Three Months Ended March 31, 2017			Three Months Ended March 31, 2016		
	Research and Development	General and Administrative	Total	Research and Development	General and Administrative	Total
Stock option grants	$ 502,475	$ 626,264	$ 1,128,739	$ 223,373	$ 480,466	$ 703,839
Restricted stock awards	39,370	20,590	59,960	25,359	34,601	59,960
	$ 541,845	$ 646,854	$ 1,188,699	$ 248,732	$ 515,067	$ 763,799

The following table summarizes the stock option activity for the three months ended March 31, 2017:

	Number of Shares	Weighted-Average Exercise Price	Weighted-Average Contractual Life (in Years)	Aggregate Intrinsic Value
Outstanding, December 31, 2016	1,808,493	$ 10.22		
Granted	443,450	$ 18.72		
Forfeited	(19,100)	$ 15.48		
Outstanding as of March 31, 2017	2,232,843	$ 11.86	8.56	$ 18,481,200
Exercisable as of March 31, 2017	721,294	$ 9.07	7.94	$ 7,957,283
Vested and expected to vest as of March 31, 2017	2,232,843	$ 11.86		

During the three months ended March 31, 2017, all of the options granted were made to employees. The weighted-average fair value of options granted during the three months ended March 31, 2017 was $12.86 and was estimated using the Black-Scholes option pricing model with the following weighted-average assumptions: expected volatility of 77%, risk free interest rate of 2.19%, expected term of 6.25 years and 0% expected dividend yield.

As of March 31, 2017, there was $11.6 million of unrecognized stock-based compensation expense related to stock options, which is expected to be recognized over a weighted-average period of 3.13 years.

The following table summarizes the restricted stock award activity under the 2014 Plan for the three months ended March 31, 2017:

	Shares	Weighted Average Grant Date Fair Value
Unvested as of December 31, 2016	253,702	$ 1.65
Vested	(36,243)	$ 1.65
Unvested as of March 31, 2017	217,459	$ 1.65

As of March 31, 2017, there was $0.3 million of unrecognized stock-based compensation expense related to unvested restricted stock awards which is expected to be recognized over a weighted-average period of 1.35 years. The Company expects all 217,459 unvested restricted stock awards to vest.

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

You should read the following discussion and analysis of our financial condition and results of operations together with our consolidated financial statements and related notes appearing elsewhere in this Quarterly Report and the audited financial statements and notes thereto for the year ended December 31, 2016 and the related Management's Discussion and Analysis of Financial Condition and Results of Operations, both of which are contained in our 2016 Annual Report. The following discussion contains forward-looking statements that involve risks, uncertainties and assumptions. Our actual results and the timing of certain events could differ materially from those anticipated in these forward-looking statements as a result of many factors. We discuss factors that we believe could cause or contribute to these differences below and elsewhere in this Quarterly Report, including those set forth under "Cautionary Note Regarding Forward-looking Statements" and "Risk Factors" in this Quarterly Report and our 2016 Annual Report.

Overview

Company Overview

We are a clinical stage specialty pharmaceutical company dedicated to developing and commercializing innovative transdermal synthetic cannabinoid treatments for patients with high unmet needs. We are evaluating two patent protected product candidates, ZYN002 and ZYN001, in five indications. We are studying ZYN002 in adult patients with refractory epileptic focal seizures (formerly known as complex partial seizures) and osteoarthritis, or OA, and in pediatric patients with fragile X syndrome, or FXS. We intend to study ZYN001 in patients with fibromyalgia and peripheral neuropathic pain. We believe these product candidates will provide new treatment options for patients, as well as additional treatment options for patients not currently receiving adequate relief from current treatment regimens. In 2016, we completed a Phase 1 program for ZYN002 in which it was demonstrated to be safe and well tolerated in both healthy volunteers and patients with epilepsy. We are currently conducting Phase 2 clinical trials for ZYN002 in adult patients with refractory epileptic focal seizures, adult patients with OA and pediatric patients with FXS. We expect to initiate Phase 1 clinical trials for ZYN001 in the first half of 2017.

Cannabinoids are a class of compounds derived from *Cannabis* plants. The two primary cannabinoids contained in *Cannabis* are cannabidiol, or CBD, and Δ9-tetrahydrocannabinol, or THC. Clinical and preclinical data suggest that CBD has positive effects on treating epilepsy, arthritis and FXS, and THC has positive effects on treating pain. We believe ZYN002 may potentially offer first-line therapies to patients suffering from epilepsy, OA and FXS, and ZYN001 may potentially offer first-line therapies to patients suffering from fibromyalgia and peripheral neuropathic pain.

ZYN002 is the first and only synthetic CBD formulated as a permeation-enhanced gel for transdermal delivery, and is patent-protected through 2030. CBD is the primary non-psychoactive component of *Cannabis*. In preclinical animal studies, ZYN002's permeation enhancer increased delivery of CBD through the layers of the skin and into the circulatory system. These preclinical studies suggest increased bioavailability, consistent plasma levels and the avoidance of first-pass liver metabolism of CBD when delivered transdermally. In addition, an *in vitro* study published in *Cannabis and Cannabinoid Research* in April 2016 demonstrated that CBD is degraded to THC in an acidic environment such as the stomach. We believe such degradation may lead to increased psychoactive effects if CBD is delivered orally and may be avoided with the transdermal delivery of ZYN002, which maintains CBD in a neutral pH. ZYN002, which is being developed as a clear gel with once- or twice-daily dosing, is targeting treatment of epilepsy, OA and FXS, which collectively affect millions of patients using treatments that currently comprise a multi-billion dollar market. We have been granted orphan drug designation from the U.S. Food and Drug Administration, or FDA, for ZYN002 for the treatment of FXS.

ZYN001 is a pro-drug of THC that enables effective transdermal delivery of THC via a patch and is patent-protected through 2031. A pro-drug is a drug administered in an inactive or less active form and designed to enable more effective delivery, which is then converted into an active form through a normal metabolic process. In addition, we expect that ZYN001 will be classified by the FDA as a new chemical entity. We are working with a development partner, LTS LOHMANN Therapie-Systeme AG to optimize the formulation of ZYN001 into a state of the art drug-adhesive matrix transdermal patch to be used in clinical studies.

In our preclinical animal studies, ZYN001 demonstrated effective skin permeation with sustained delivery and rapid conversion of ZYN001 to THC. These preclinical studies suggest increased bioavailability, consistent plasma levels and the avoidance of first-pass liver metabolism of ZYN001. In addition, preclinical testing has shown no genotoxicity

findings and safety pharmacology findings consistent with those seen with THC. ZYN001 is targeting two pain indications, fibromyalgia and peripheral neuropathic pain, which collectively represent multi-billion dollar markets.

Our key development programs and expected timelines for the development of ZYN002 and ZYN001 are shown in the chart below:

Product	Study	Key Milestone	Timing
ZYN002	Epilepsy in Adults with Focal Seizures STAR 1	Phase 2 Results	July/August 2017
ZYN002	Osteoarthritis STOP	Phase 2 Results	July/August 2017
ZYN002	Fragile X Syndrome FAB-C	Phase 2 Results	Q3 2017
ZYN001	Safety and PK	Phase 1 Initiation	1H 2017
ZYN001	Fibromyalgia	Phase 2 Initiation	2H 2017
ZYN001	Peripheral Neuropathic Pain	Phase 2 Initiation	2H 2017

We have never been profitable and have incurred net losses since inception. Our net losses were $7.3 million and $4.3 million for the three months ended March 31, 2017 and 2016, respectively. As of March 31, 2017, our accumulated deficit was $53.2 million. We expect to incur losses for the foreseeable future, and we expect these losses to increase as we continue our development of, and seek regulatory approvals for, our product candidates. Because of the numerous risks and uncertainties associated with product development, we are unable to predict the timing or amount of increased expenses or when, or if, we will be able to achieve or maintain profitability.

Financial Operations Overview

The following discussion sets forth certain components of our consolidated statements of operations as well as factors that impact those items.

Revenue

Historically, our revenue consisted of state and federal research grants and fees received from research services for third-party product development. We recognize revenue when persuasive evidence of an arrangement exists, delivery has occurred or services have been rendered, the price is fixed or determinable and collectability is reasonably assured.

Research and Development Expenses

Our research and development expenses relating to our product candidates consist of the following:

- expenses associated with preclinical development and clinical trials;
- personnel-related expenses, such as salaries, benefits, travel and other related expenses, including stock-based compensation;
- payments to third-party CROs, contractor laboratories and independent contractors; and
- depreciation, maintenance and other facility-related expenses.

We expense all research and development costs as incurred. Clinical development expenses for our product candidates are a significant component of our research and development expenses. Expenses associated with clinical trials will increase as our clinical trials progress. Product candidates in later stage clinical development generally have higher research and development expenses than those in earlier stages of development, primarily due to increased size and duration of the clinical trials. We track and record information regarding external research and development expenses for each grant, study or trial that we conduct. We use third-party CROs, contractor laboratories and independent contractors in preclinical studies and clinical trials. We recognize the expenses associated with third parties performing these services for us in our preclinical studies and clinical trials based on the percentage of each study completed at the end of each reporting period.

For the three months ended March 31, 2017 and 2016, we recognized research and development expenses of $5.5 million and $2.6 million, respectively, which were net of $1.1 million and $0.4 million, respectively, associated with expected refunds of Australian Goods and Services Taxes, or GST, incurred under certain qualified research and development costs paid to Australian vendors.

We expect research and development expenses in future years to continue to increase as we continue our clinical trials and begin new phases for each of our product candidates. These expenditures are subject to numerous uncertainties regarding timing and cost to completion. Completion of our preclinical development and clinical trials may take several years or more and the length of time generally varies according to the type, complexity, novelty and intended use of a product candidate. The cost of clinical trials may vary significantly over the life of a project as a result of differences arising during clinical development, including, among others:

- the number of sites included in the clinical trials;
- the length of time required to enroll suitable patients;
- the size of patient populations participating in the clinical trials;
- the duration of patient follow-ups;
- the development stage of the product candidates; and
- the efficacy and safety profile of the product candidates.

Due to the early stages of our research and development, we are unable to determine the duration or completion costs of our development of ZYN002 and ZYN001. As a result of the difficulties of forecasting research and development costs of ZYN002 and ZYN001 as well as the other uncertainties discussed above, we are unable to determine when and to what extent we will generate revenue from the commercialization and sale of an approved product candidate.

General and Administrative Expenses

General and administrative expenses consist primarily of salaries, benefits and other related costs, including stock-based compensation, for personnel serving in our executive, finance, legal, human resource and commercial functions. Our general and administrative expenses also include facility and related costs not included in research and development expenses, professional fees for legal services, including patent-related expenses, consulting, tax and accounting services, insurance, market research and general corporate expenses. We expect that our general and administrative expenses will increase with the continued development and potential commercialization of our product candidates.

We expect that our general and administrative expenses in 2017 and for the next several years will be higher than in past years as we increase our headcount. We also anticipate increased expenses relating to our operations as a public reporting company, including increased costs for the hiring of additional personnel, and for payment to outside consultants, including lawyers and accountants, to comply with additional regulations, corporate governance, internal controls and similar requirements applicable to public reporting companies, as well as increased costs for insurance.

Interest Income

Interest income consists primarily of interest earned on balances maintained in our money market bank account.

Foreign Exchange Gain (Loss)

Foreign exchange gain (loss) relates to the effect of exchange rates on transactions incurred by our Australian subsidiary.

Critical Accounting Estimates

Our management's discussion and analysis of our financial condition and results of operations is based on our consolidated financial statements, which have been prepared in accordance with generally accepted accounting principles in the United States, or GAAP. The preparation of these financial statements requires us to make estimates and judgments that affect the reported amounts of assets and liabilities, disclosure of contingent assets and liabilities at the date of the financial statements, and the reported amounts of revenues and expenses during the reported period. In accordance with GAAP, we base our estimates on historical experience, known trends and events and various other factors that we believe to be reasonable under the circumstances, the results of which form the basis for making judgments about the carrying amounts of assets and liabilities that are not readily apparent from other sources. Actual results may differ from these estimates under different assumptions or conditions.

We define our critical accounting policies as those accounting principles generally accepted in the United States that require us to make subjective estimates and judgments about matters that are uncertain and are likely to have a material impact on our financial condition and results of operations as well as the specific manner in which we apply those principles. Critical accounting estimates and the accounting policies critical to the process of making significant judgments and estimates in the preparation of our consolidated financial statements are discussed in our 2016 Annual Report under Part I, Item 7, "Critical Accounting Policies and Use of Estimates". During the three months ended March 31, 2017, there have been no material changes to the critical accounting estimates or critical accounting policies discussed in our 2016 Annual Report.

Results of Operations

Comparison of the Three Months Ended March 31, 2017 and 2016

Revenue

Revenue for the three months ended March 31, 2016 was related to work performed in connection with grants received prior to 2016. Grants received were recorded as deferred revenue and recognized as revenue as the designated preclinical study progressed and amounts were earned. No additional grants were received in 2016 or 2017.

Research and Development Expenses

Research and development expenses increased by $2.9 million, or 114%, to $5.5 million for the three months ended March 31, 2017 from $2.6 million for the three months ended March 31, 2016. The increase was primarily related to an increase in the number and size of our non-clinical studies and clinical trials for ZYN002 and ZYN001. Additionally, personnel costs, including stock-based compensation expense, also increased from the comparable prior-year period.

General and Administrative Expenses

General and administrative expenses increased by $0.5 million, or 32%, to $2.2 million for the three months ended March 31, 2017 from $1.7 million for the three months ended March 31, 2016. The increase was primarily related to costs associated with the development of commercialization plans for our products, an increase in fees associated with public company reporting and compliance and an increase in stock-based compensation expense.

Other Income (Expense)

For the three months ended March 31, 2017 and 2016, we recognized $76,885 and $12,377, respectively, in interest income. The increase in interest income was primarily related to a higher amount of invested cash resulting from the receipt of $54.2 million from our public follow-on offering in the first quarter of 2017. During the three months ended March 31, 2017 and 2016, we recognized a foreign currency gain of $367,342 and a foreign currency loss of $23,148, respectively. Foreign currency gains and losses are due primarily to the remeasurement of our Australian subsidiary's

assets and liabilities that are denominated in the local currency to the subsidiary's functional currency, which is the U.S. dollar.

Liquidity and Capital Resources

Since our inception in 2007, we have devoted most of our cash resources to research and development and general and administrative activities. We have financed our operations primarily with the proceeds from the sale of equity securities (most notably our IPO in 2015, sales under our "at-the-market" offering in 2016, and our follow-on public offering in the first quarter of 2017, which are described below under Recent Equity Financings) and convertible promissory notes, state and federal grants and research services.

To date, we have not generated any revenue from the sale of products, and we do not anticipate generating any revenue from the sales of products for the foreseeable future. We have incurred losses and generated negative cash flows from operations since inception. As of March 31, 2017, our principal source of liquidity was our cash and cash equivalents, which totaled $77.5 million. Our working capital was $76.4 million as of March 31, 2017.

Management believes that cash and cash equivalents as of March 31, 2017 is sufficient to develop five Phase 3-ready programs and, assuming feedback from the FDA supports a decision to proceed, initiate at least one Phase 3 program and fund operations and capital requirements into 2019. However, it is difficult to predict our spending for our product candidates prior to obtaining FDA approval. Moreover, changing circumstances beyond our control may cause us to expend more cash than currently expected or cash significantly faster than we currently anticipate.

Recent Equity Financings

In September 2016, we entered into an Open Market Sales Agreement, or the Sales Agreement, with Jefferies LLC, or Jefferies, pursuant to which we sold and issued 794,906 shares of our common stock in the open market at a weighted average selling price of $13.39 per share, for gross proceeds of $10.6 million. Net proceeds received after deducting commissions and offering expenses were $10.0 million.

In the first quarter of 2017, we completed an additional follow-on public offering, selling 3,220,000 shares of our common stock at an offering price of $18.00 per share, resulting in gross proceeds of $58.0 million. Net proceeds received after deducting underwriting and commissions and offering expenses were $54.2 million.

Debt

We had no debt outstanding as of March 31, 2017 or December 31, 2016.

Future Capital Requirements

During the three months ended March 31, 2017, net cash used in operating activities was $7.6 million, and our accumulated deficit as of March 31, 2017 was $53.2 million. Our expectations regarding future cash requirements do not reflect the potential impact of any future acquisitions, mergers, dispositions, joint ventures or investments that we may make in the future. To the extent that we enter into any of those types of transactions, we may need to raise substantial additional capital.

We expect to continue to incur substantial additional operating losses for at least the next several years as we continue to develop our product candidates and seek marketing approval and, subject to obtaining such approval, the eventual commercialization of our product candidates. If we obtain marketing approval for either of our product candidates, we will incur significant sales, marketing and manufacturing expenses. In addition, we expect to incur additional expenses to add operational, financial and information systems and personnel, including personnel to support our planned product commercialization efforts. We also expect to continue to incur significant costs to comply with corporate governance, internal controls and similar requirements associated with operating as a public reporting company.

Our future use of operating cash and capital requirements will depend on many forward-looking factors, including the following:

- the initiation, progress, timing, costs and results of preclinical studies and clinical trials for our product

candidates;

- the clinical development plans we establish for these product candidates;
- the number and characteristics of product candidates that we develop or may in-license;
- the terms of any collaboration agreements we may choose to execute;
- the outcome, timing and cost of meeting regulatory requirements established by the United States Drug Enforcement Agency, the FDA, the European Medicines Agency or other comparable foreign regulatory authorities;
- the cost of filing, prosecuting, defending and enforcing our patent claims and other intellectual property rights;
- the cost of defending intellectual property disputes, including patent infringement actions brought by third parties against us;
- costs and timing of the implementation of commercial scale manufacturing activities; and
- the cost of establishing, or outsourcing, sales, marketing and distribution capabilities for any product candidates for which we may receive regulatory approval in regions where we choose to commercialize our products on our own.

To the extent that our capital resources are insufficient to meet our future operating and capital requirements, we will need to finance our cash needs through public or private equity offerings, debt financings, collaboration and licensing arrangements or other financing alternatives. We have no committed external sources of funds. Additional equity or debt financing or collaboration and licensing arrangements may not be available on acceptable terms, if at all.

If we raise additional funds by issuing equity securities, our stockholders will experience dilution.

Cash Flows

The following table summarizes our cash flows from operating, investing and financing activities for the three months ended March 31, 2017 and 2016.

	Three Months Ended March 31,	
	2017	2016
Statement of Cash Flows Data:		
Total net cash (used in) provided by:		
Operating activities	$ (7,649,568)	$ (4,674,832)
Investing activities	(68,613)	(28,535)
Financing activities	54,245,579	—
Net (decrease) increase in cash and cash equivalents	$ 46,527,398	$ (4,703,367)

Operating Activities

For the three months ended March 31, 2017, cash used in operating activities was $7.6 million compared to $4.7 million for the three months ended March 31, 2016. The increase from the comparable 2016 period was primarily the result of increased research and development activities related to the non-clinical studies and clinical trials of ZYN002 and ZYN001, as well as an increase in the number of employees hired to support our research and development and general and administrative activities, and an increase in receivables, related to an incentive associated with research and development costs in Australia and the expected refund of GST paid to Australian vendors.

We expect cash used in operating activities to continue to increase throughout the remainder of 2017 as compared to the comparable periods in 2016 due to an expected increase in our operating losses associated with ongoing development of our product candidates.

Investing Activities

For the three months ended March 31, 2017 and 2016 cash used in investing activities primarily represented the cost of computer equipment and furniture and fixtures associated with our corporate headquarters.

Financing Activities

Cash provided by financing activities for the three months ended March 31, 2017 represented proceeds from sales of our shares of common stock under a follow-on public offering, net of related offering costs.

Contractual Obligations

Our material contractual obligations consist of commitments under operating lease agreements and the related amounts of our obligations as of December 31, 2016 were disclosed in “Contractual Obligations” in Part I, Item 7 in our 2016 Annual Report. Since December 31, 2016, no material changes in our contractual obligations have occurred.

Off-Balance Sheet Arrangements

We do not have any off-balance sheet arrangements, except for operating leases, or relationships with unconsolidated entities or financial partnerships, such as entities often referred to as structured finance or special purpose entities.

Recent Accounting Pronouncements

In February 2016, the Financial Accounting Standards Board, or FASB, issued Accounting Standards Update, or ASU, No. 2016-02, *Leases*, which requires that lease arrangements longer than 12 months result in an entity recognizing an asset and liability. The pronouncement is effective for interim and annual periods beginning after December 15, 2018 with early adoption permitted. The adoption of this guidance is not expected to have a material impact on our consolidated financial statements.

In March 2016, the FASB issued ASU No. 2016-09, *Improvements to Employee Share-Based Payment Accounting*, which is intended to simplify the accounting and reporting for employee share-based payment transactions. The pronouncement is effective for interim and annual periods beginning after December 31, 2016. Our adoption of the guidance in ASU No. 2016-09 in the first quarter of 2017 did not have a material impact on our consolidated financial statements.

In August 2016, the FASB issued ASU No. 2016-15, *Classification of Certain Cash Receipts and Cash Payments*, which provides specific guidance related to eight cash flow classification issues. The pronouncement is effective for interim and annual periods beginning after December 15, 2017 with early adoption permitted. The adoption of this guidance is not expected to have a material impact on our consolidated financial statements.

In November 2016, the FASB issued ASU No. 2016-18, *Restricted Cash*, which requires changes in restricted cash and restricted cash equivalents to be explained on the statement of cash flows by including restricted cash and restricted cash equivalents in the beginning-of-period and end-of-period total cash and cash equivalents shown on the statement of cash flows. The pronouncement is effective for interim and annual periods beginning after December 15, 2017 with early adoption permitted. The adoption of this guidance is not expected to have a material impact on our consolidated financial statements.

JOBS Act

On April 5, 2012, the Jumpstart Our Business Startups Act of 2012, or JOBS Act, was signed into law. The JOBS Act contains provisions that, among other things, reduce certain reporting requirements for an "emerging growth company." As an "emerging growth company," we have elected not to take advantage of the extended transition period afforded by the JOBS Act for the implementation of new or revised accounting standards, and as a result, we will comply with new or revised accounting standards on the relevant dates on which adoption of such standards is required for non-emerging growth companies. Section 107 of the JOBS Act provides that our decision not to take advantage of the extended transition period is irrevocable.

Subject to certain conditions set forth in the JOBS Act, as an "emerging growth company," we are not required to, among other things, (i) provide an auditor's attestation report on our system of internal controls over financial reporting pursuant to Section 404, (ii) provide all of the compensation disclosure that may be required of non-emerging growth public companies under the Dodd-Frank Wall Street Reform and Consumer Protection Act, (iii) comply with any requirement that may be adopted by the Public Company Accounting Oversight Board regarding mandatory audit firm rotation or a supplement to the auditor's report providing additional information about the audit and the financial statements (auditor discussion and analysis), and (iv) disclose certain executive compensation-related items such as the correlation between executive compensation and performance and comparisons of the chief executive officer's compensation to median employee compensation. These exemptions will apply until December 31, 2020 or until we no longer meet the requirements for being and "emerging growth company," whichever occurs first.

Item 3. ***Quantitative and Qualitative Disclosures About Market Risk***

We are exposed to various market risks, which may result in potential losses arising from adverse changes in market rates, such as interest rates and foreign exchange rates. We do not enter into derivative instruments or other financial instruments for trading or speculative purposes nor do we engage in any hedging activities. As of March 31, 2017, we had cash and cash equivalents of $77.5 million consisting primarily of cash and money market account balances. Because of the short-term maturities of our cash and cash equivalents, we do not believe that an immediate 10% increase in interest rates would have any significant impact on the realized value of our investments. Accordingly, we do not believe we are exposed to material market risk with respect to our cash and cash equivalents.

We have engaged third parties to manufacture our product candidates in Canada and Europe and to conduct clinical trials for our product candidates in Australia. Manufacturing and research costs related to these operations are paid for in a combination of U.S. dollars and local currencies, limiting our foreign currency exchange rate risk. Accordingly, we do not believe foreign currency exchange rate risk is a significant risk; however, if we conduct clinical trials and seek to manufacture a more significant portion of our product candidates outside of the United States in the future, we could incur significant foreign currency exchange rate risk.

Item 4. Controls and Procedures.

Evaluation of Disclosure Controls and Procedures

Our management, with the participation of our Chief Executive Officer and Chief Financial Officer, evaluated the effectiveness of our disclosure controls and procedures as of March 31, 2017. The term "disclosure controls and procedures," as defined in Rules 13a-15(e) and 15d-15(e) under the Securities Exchange Act of 1934, as amended, or the Exchange Act, means controls and other procedures of a company that are designed to ensure that information required to be disclosed by a company in the reports that it files or submits under the Exchange Act is recorded, processed, summarized and reported, within the time periods specified in the rules and forms, promulgated by the Securities and Exchange Commission. Management recognizes that any controls and procedures, no matter how well designed and operated, can provide only reasonable assurance of achieving their objectives and management necessarily applies its judgment in evaluating the cost-benefit relationship of possible controls and procedures. Based on the evaluation of the effectiveness of the design and operation of our disclosure controls and procedures as of March 31, 2017, our Chief Executive Officer and Chief Financial Officer concluded that, as of such date, our disclosure controls and procedures were effective at the reasonable assurance level.

Changes in Internal Control Over Financial Reporting

There were no changes in our internal control over financial reporting (as defined in Rules 13a-15(f) and 15(d)-15(f) under the Exchange Act) that occurred during the three months ended March 31, 2017 that have materially affected, or are reasonably likely to materially affect, our internal control over financial reporting.

PART II—OTHER INFORMATION

Item 1. Legal Proceedings.

We are not currently a party to any legal proceedings.

Item 1A. Risk Factors.

You should carefully consider the risk factors described in our Annual Report on Form 10-K for the fiscal year ended December 31, 2016, or the 2016 Annual Report, under the caption "Item 1.A "Risk Factors". There have been no material changes to the risk factors disclosed in our 2016 Annual Report.

Item 2. Unregistered Sales of Equity Securities and Use of Proceeds.

Recent Sales of Unregistered Securities

None.

Use of Proceeds

Our IPO was effected through a Registration Statement on Form S-1 (File No. 333-205355) that was declared effective by the SEC on August 4, 2015, which registered an aggregate of 3,450,000 shares of our common stock. On August 10, 2015, we received net proceeds from the IPO of $42.1 million.

As of March 31, 2017, we have used approximately $28.9 million of the net offering proceeds from our IPO to fund the development efforts of ZYN002 (including funding of our Phase 1 and Phase 2 clinical trials), development efforts of ZYN001, working capital, research and development and general corporate purposes. None of the net proceeds have been paid directly or indirectly to (i) our directors, officers or any of their associates; (ii) persons owning 10% or more of our common stock; or (iii) our affiliates, other than payments in the ordinary course of business to our wholly-owned subsidiary, to officers for salaries and bonuses and to non-employee directors as compensation for board service.

Our use of the net proceeds to date is consistent with the use of proceeds described in our prospectus filed with the SEC pursuant to Rule 424(b)(4) on August 5, 2015, or the Prospectus, and there has been no material change in our planned use of the balance of the net proceeds from the IPO described in the Prospectus.

Purchase of Equity Securities

We did not purchase any of our registered equity securities during the period covered by this Quarterly Report on Form 10-Q.

Item 3. Defaults Upon Senior Securities.

None.

Item 4. Mine Safety Disclosures.

None.

Item 5. Other Information.

Not applicable

Item 6. Exhibits.

The exhibits filed as part of this Quarterly Report on Form 10-Q are set forth on the Exhibit Index, which Exhibit Index is incorporated herein by reference.

SIGNATURES

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

ZYNERBA PHARMACEUTICALS, INC.

Date: May 9, 2017

By: /s/ ARMANDO ANIDO
Armando Anido
Chief Executive Officer
(Principal executive officer)

Date: May 9, 2017

By: /s/ JAMES E. FICKENSCHER
James E. Fickenscher
Chief Financial Officer
(Principal financial and accounting officer)

EXHIBIT INDEX

10.1	Employment Agreement, dated January 18, 2017, by and between the registrant and Brian Rosenberger. Incorporated herein by reference to Exhibit 10.7 to the registrant's Annual Report on Form 10-K for the fiscal year ended December 31, 2016 (File No. 001-37526) filed on March 27, 2017.*
31.1	Certification of Chief Executive Officer pursuant to Rules 13a-14(a) or 15d-14(a) of the Securities Exchange Act of 1934, as adopted pursuant to Section 302 of the Sarbanes-Oxley Act of 2002 (filed herewith).
31.2	Certification of Chief Financial Officer pursuant to Rules 13a-14(a) or 15d-14(a) of the Securities Exchange Act of 1934, as adopted pursuant to Section 302 of the Sarbanes-Oxley Act of 2002 (filed herewith).
32.1	Certification of Chief Executive Officer pursuant to 18 U.S.C. Section 1350, as adopted pursuant to Section 906 of the Sarbanes-Oxley Act of 2002 (furnished herewith).
32.2	Certification of Chief Financial Officer pursuant to 18 U.S.C. Section 1350, as adopted pursuant to Section 906 of the Sarbanes-Oxley Act of 2002 (furnished herewith).
101 INS	XBRL Instance Document (filed herewith).
101 SCH	XBRL Taxonomy Extension Schema Document (filed herewith).
101 CAL	XBRL Taxonomy Extension Calculation Linkbase Document (filed herewith).
101 DEF	XBRL Taxonomy Extension Definition Linkbase Document (filed herewith).
101 LAB	XBRL Taxonomy Extension Label Linkbase Document (filed herewith).
101 PRE	XBRL Taxonomy Extension Presentation Linkbase Document (filed herewith).

* Indicates management contract or compensatory plan or arrangement.

Exhibit 10.1

EMPLOYMENT AGREEMENT

THIS EMPLOYMENT AGREEMENT (this "Agreement") is made and entered into as of January 18, 2017 (the "Effective Date") by and between Zynerba Pharmaceuticals, Inc., a Delaware corporation (the "Employer") and Brian Rosenberger (the "Employee").

Recitals

WHEREAS, the Employer desires to employ the Employee and the Employee desires to be employed by the Employer upon the terms and conditions hereinafter set forth.

NOW, THEREFORE, in consideration of the premises and covenants set forth herein, and intending to be legally bound hereby, the parties to this Agreement hereby agree as follows:

1. Duties. The Employer agrees that the Employee shall serve as Vice President Commercial of the Employer. The Employee shall report to the Chief Executive Officer of the Employer. The Employee agrees to be so employed by the Employer and to devote his best efforts and substantially all of his business time to advance the interests of the Employer and to perform such executive, managerial, administrative and financial functions as are required to develop the Employer's business and to perform such other duties that are consistent with the Employee's position. Nothing set forth herein shall prohibit the Employee from engaging in personal investing activities, provided such activities do not conflict with the business of the Employer and are consistent with the Employer's internal trading policies. The Employee shall be permitted to serve on the boards of directors of other entities whose businesses are not competitive with the Employer in accordance with Employer policy.

2. Term. This Agreement is effective as of the Effective Date, and, from and after the Effective Date, will govern the Employee's employment by the Employer until that employment ceases in accordance with the terms of this Agreement.

3. Compensation.

(a) Salary. The Employee shall be paid a base salary at the annual rate of $270,000 (the "Base Salary") in accordance with the Employer's regular payroll practices. The Board of Directors of the Company ("Board") or the Compensation Committee of the Board (the "Compensation Committee") shall review the Base Salary at least annually at the end of each calendar year pursuant to the normal performance review policies for senior level executives.

(b) Incentive Compensation.

(i) The Employee shall participate in all short-term and long-term incentive programs, including equity compensation programs, established by the Employer for its senior level executives generally, at levels determined by the Board or the Compensation Committee. The Employee's incentive compensation shall be subject to the terms of the applicable plans and shall be determined based on the Employee's individual performance and Employer

performance as determined by the Board or the Compensation Committee and shall be awarded, if at all, at the discretion of the Employer. Any annual incentive compensation earned by the Employee shall be paid on or after January 1, but not later than March 15 of the fiscal year following the fiscal year for which the annual incentive compensation is earned.

(ii) Employee's target annual discretionary bonus shall be thirty-five percent (35%) of Employee's Base Salary, subject to the achievement of goals to be mutually agreed upon by the Employee and the Board or Compensation Committee.

(iii) Upon the Effective Date of this Agreement, Employee shall receive non-qualified stock options to purchase an aggregate of 37,500 shares of Employer common stock in accordance with the terms of the Nonqualified Stock Option Grant Agreement attached hereto as Exhibit A (the "Option"). The Option shall have a per share exercise price equal to the closing price of Employer common stock on the date of the Grant (which shall be the Effective Date) and shall vest twenty-five percent (25%) on the first anniversary of the date of the Grant with the remainder vesting over twelve equal quarterly installments thereafter, so that the Option is one hundred percent (100%) vested on the fourth anniversary of the date of Grant. Notwithstanding any term contained herein or in any Grant Instrument to the contrary, if the Employee (A) dies while employed by or providing service to the Employer; or (B) ceases to be employed by, or to provide service to, the Employer on account of the Employee's Total Disability all vested and exercisable Grants held by Employee on such date shall remain exercisable (by Employee or by Employee's representative) for a period of twelve (12) months following death or Total Disability (or until the expiration date of the applicable Grant, if earlier).

(c) Retirement and Welfare Benefits. The Employee shall participate in employee retirement and welfare benefit plans made available to the Employer's senior level executives as a group or to its employees generally, as such retirement and welfare plans may be in effect from time to time and subject to the eligibility requirements of the plans. Nothing in this Agreement shall prevent the Employer from amending or terminating any retirement, welfare or other employee benefit plans or programs from time to time as the Employer deems appropriate.

(d) Reimbursement of Expenses; Vacation. The Employee shall be reimbursed for all normal items of travel, entertainment and miscellaneous business expenses reasonably incurred by the Employee on behalf of the Employer, provided that such expenses are documented and submitted in accordance with the reimbursement policies of the Employer as in

effect from time to time (subject to Section 9 of this Agreement). The Employee shall be entitled to vacation and sick leave in accordance with the Employer's applicable leave policies.

4. Termination.

(a) Death. This Agreement shall automatically terminate effective as of the date of the Employee's death, in which event the Employer shall have no further obligation or liability under this Agreement except that the Employer shall pay to the Employee's estate: (i) any portion of the Employee's Base Salary for the period up to the Employee's date of death that has been earned but remains unpaid; and (ii) any benefits that have been earned, accrued and are due to the Employee under the terms of the employee benefit plans of the Employer, which benefits shall be paid in accordance with the terms of those plans. Any equity that is unvested at the time of Employee's death shall be treated in accordance with the applicable equity plan.

(b) Total Disability. In the event of the Employee's Total Disability (as defined below), the Employer may terminate the employment of the Employee, to the extent permitted by law, immediately upon written notice to the Employee, in which event, the Employer shall have no further obligation or liability under this Agreement except that the Employer shall pay to the Employee: (i) any portion of the Employee's Base Salary for the period up to the date of termination that has been earned but remains unpaid; and (ii) any benefits that have been earned, accrued and are due to the Employee under the terms of the employee benefit plans of the Employer, which benefits shall be paid in accordance with the terms of those plans. Any equity that is unvested at the time of Employee's Total Disability shall be treated in accordance with the applicable equity plan.

(c) Termination by the Employer for Cause. Subject to any applicable right to cure under Section 4(g)(i), the Employer may terminate the Employee's employment at any time, effective immediately, for Cause upon written notice to the Employee. In the event that the Employer terminates the Employee pursuant to this Section 4(c), the Employer shall have no further obligation or liability under this Agreement, except that the Employer shall pay to the Employee: (i) any portion of the Employee's Base Salary for the period up to the Termination Date that has been earned but remains unpaid; and (ii) any benefits that have been earned, accrued and are due to the Employee under the terms of the employee benefit plans of the Employer, which benefits shall be paid in accordance with the terms of those plans.

(d) Termination by the Employer Without Cause; Termination by the Employee for Good Reason. The Employer may terminate the employment of the Employee for any reason other than those specified in Section 4(b) or 4(c) upon thirty (30) days written notice (or the payment of Base Salary and benefit continuation in lieu of such thirty (30) day notice) to the Employee. In addition, the Employee may terminate his employment at any time, including, without limitation, upon written notice to the Employer for Good Reason in accordance with the requirements of Section 4(g)(vi).

If the Employee terminates his employment for Good Reason (as such term is defined herein), or the Employer terminates the Employee for any reason other than those specified in Section 4(b) or 4(c) hereof, then the Employer shall pay to the Employee:

(i) any portion of the Employee's Base Salary for the period up to the Termination Date that has been earned but remains unpaid;

(ii) any benefits that have been earned, accrued and are due to the Employee under the terms of any employee benefit plans of the Employer, which benefits shall be paid in accordance with the terms of those plans; and

(iii) subject to the execution and nonrevocation by the Employee of a release satisfactory to the Employer (the "Release) and the Employee's compliance with all terms and provisions of this Agreement that survive the termination of the Employee's employment by the Employer, the Employer shall provide the Employee with the payments and benefits set forth below in (A), (B) and (C). Notwithstanding any provision of this Agreement to the contrary, in no event shall the timing of the Employee's execution of the Release, directly or indirectly result in the Employee designating the calendar year of payment and to the extent payment could be made in more than one taxable year, payment shall be made in the later taxable year. Moreover, such release must be executed, if at all, no later than sixty (60) days following the date of Employee's separation from service from Employer. The payments and benefits for such termination are limited to:

(A) Severance in an amount equal to salary continuation of Employee's Base Salary at the rate in effect at the time of the Employee's termination for a period of nine (9) months following the effective date of the Release; and

(B) Continued medical and dental coverage at the same level in effect at the time of the Termination Date (or generally comparable coverage) for a period of nine (9) months following the Termination Date for himself and, where applicable, his spouse and dependents, at the same premium rates as may be charged from time to time for employees generally, as if the Employee had continued in employment during such nine (9) month period. If applicable, the health care continuation period shall run concurrently with the foregoing nine (9) month period; and

(C) Pro rata vesting of all outstanding unvested stock options and other equity-based awards held by the Employee that would have vested had the Employee remained employed for twelve months following the Termination Date.

(D) The Exercise of all vested equity awards by Employee at the termination of employment (except on account of death or disability as indicated in Sections 4(a) and (b)) shall be governed by the terms of the applicable equity plan adopted by Employer.

(e) Effect of a Change of Control. Notwithstanding any provision of Section 4(d) to the contrary, if Employee's employment is terminated pursuant to Section 4(d) within the ninety (90) day period preceding a Change of Control or on or within twelve (12) months following a Change of Control upon such termination or resignation, Employee shall be entitled to the same payments and benefits described in Section 4(d) above, subject to execution and nonrevocation of the Release and the Employee's compliance with all terms and provisions of this Agreement that survive the termination of the Employee's employment by the Employer, provided that in addition to the severance and other benefits set forth in Section 4(d) (iii) (A)-(C), (i) one hundred percent (100%) of all outstanding unvested stock options and other equity-based awards held by the Employee as of the Termination Date shall become fully vested and exercisable (to the extent applicable) as of the Termination Date; (ii) all outstanding stock options and other equity-based awards held by the Employee as of the Termination Date that

become vested pursuant to (i) above or that are vested as of the Termination Date shall remain exercisable (to the extent applicable) until the earlier of (x) the three (3) year anniversary of the Termination Date and (y) the expiration date of the relevant stock option or other equity-based award; and (iii) Employee shall be entitled to one hundred percent (100%) of Employee's targeted annual bonus for the year in which the Termination Date occurs, without regard to whether the relevant Employee and Employer goals have been achieved.

Notwithstanding anything set forth in this Agreement to the contrary, if any payment or benefit, including severance benefits, that the Employee would receive from the Employer in connection with a Change of Control or otherwise ("Payment") would (i) constitute a "parachute payment" within the meaning of section 280G of the Code and (ii) but for this sentence, be subject to the excise tax imposed by section 4999 of the Code (the "Excise Tax"), then such Payment shall be reduced to the Reduced Amount. The "Reduced Amount" shall be either (A) the largest portion of the Payment that would result in no portion of the Payment being subject to the Excise Tax or (B) the largest portion, up to and including the total, of the Payment, whichever amount, after taking into account all applicable federal, state and local employment taxes, income taxes, and the Excise Tax (all computed at the highest applicable marginal rate), results in the Employee's receipt, on an after-tax basis, of the greater amount of the Payment notwithstanding that all or some portion of the Payment may be subject to the Excise Tax. If a reduction in payments or benefits (or a cancellation of the acceleration of vesting of stock options or other equity-based awards) constituting "parachute payments" is necessary so that the Payment equals the Reduced Amount, such reduction and/or cancellation of acceleration shall occur in the order that provides the maximum economic benefit to the Employee. In the event that acceleration of vesting of a stock option or other equity-based award is to be reduced, such acceleration of vesting also shall be canceled in the order that provides the maximum economic benefit to the Employee.

The Employer shall appoint a nationally recognized accounting firm with appropriate subject matter expertise to make the determinations required under this Section 4(e).

The Employer shall bear all expenses with respect to the making of the determinations by such accounting firm required to be made under this Section 4(e), up to a maximum of $25,000. The accounting firm engaged to make the determinations under this Section 4(e) shall provide its calculations, together with detailed supporting documentation, to the Employer and the Employee as soon as practicable after the date on which the Employee's right to a Payment is triggered (if requested at that time by the Employer or the Employee) or such other time as requested by the Employer or the Employee. If the accounting firm determines that no Excise Tax is payable with respect to a Payment, either before or after the application of the Reduced Amount, it shall furnish the Employer with an opinion reasonably acceptable to the Employee that no Excise Tax will be imposed with respect to such Payment. Any good faith determinations of the accounting firm made under this Section 4(e) shall be final, binding, and conclusive upon the Employer and the Employee.

(f) Elective Termination by Employee. Employee may voluntarily terminate his employment with the Employer without Good Reason at any time upon thirty (30) days prior written notice, which termination shall become effective upon the thirtieth (30) day after the receipt of such notice. In the event that the Employee terminates his

(g) employment pursuant to this Section 4(f), the Employer shall have no further obligation or liability for compensation or benefits, except that the Employer shall pay to the Employee:(A) any portion of the Employee's Base Salary for the period up to the Termination Date that has been earned but remains unpaid; and (B) any benefits that have been earned, accrued and are due to the Employee under the terms of the employee benefit plans of the Employer, which benefit s shall be paid in accordance with the terms of those plans.

(h) Definitions.

(i) "Cause" shall be deemed to exist with respect to any termination of employment by the Employer for any of the following reasons:

(1) the Employee's engagement in conduct constituting breach of fiduciary duty, gross negligence or willful misconduct relating to the Employer or the performance of the Employee's duties;

(2) the Employee's continued failure to perform the Employee's material duties in a satisfactory manner after written notice specifying the areas in which performance is unsatisfactory and, if subject to cure, the Employee's failure to perform within thirty (30) days after such notice;

(3) the Employee's commission of any act of fraud with respect to the Employer;

(4) the Employee's violation of any covenants or agreements in favor of the Employer regarding confidentiality, non-competition and/or non-solicitation; or

(5) the Employee's conviction of a felony or a crime involving moral turpitude under the laws of the United States or any state or political subdivision thereof.

Any notice required to be provided to the Employee under clause (2) of this definition of "Cause" shall state that failure to cure within the applicable period will result in termination for Cause.

(ii) "Change of Control" shall mean:

(1) any person or entity becomes the beneficial owner, directly or indirectly, of securities of the Employer representing greater than 50% (>50%) percent of the total voting power of all its then outstanding voting shares;

(2) a merger or consolidation of the Employer in which its voting securities immediately prior to the merger or consolidation do not represent, or are not converted into securities that represent, a majority of the voting power of

all voting securities of the surviving entity immediately after the merger or consolidation;

(3) a sale of substantially all of the assets of the Employer or a liquidation or dissolution of the Employer.

(4) But in no event shall "Change of Control" mean an initial public offering ("IPO") of the Employer's stock or any investment by any individual or entity that does not result in the right of such individual or entity to appoint a majority of the Employer's Board.

(iii) "Code" shall mean the Internal Revenue Code of 1986, as amended, and the regulations promulgated thereunder.

(iv) "Fair Market Value" means, for so long as the common stock of Employer is not publicly traded or, if publicly traded, is not subject to reported transactions requirements, the Fair Market Value per share shall be as determined reasonably and in good faith by the Board or the Compensation Committee through any reasonable valuation method authorized under section 409A of the Code.

(v) "Fully Diluted" means, the number of outstanding shares of common stock as of any date, equal to the sum of (i) the common shares outstanding on such date plus (ii) the maximum number of common shares issuable upon the conversion of the preferred shares outstanding on such date plus (iii) the maximum number of common shares issuable upon the exercise, conversion or exchange of all outstanding options, warrants and other securities exercisable or exchangeable for, or convertible into, common shares.

(vi) "Good Reason" shall be deemed to exist with respect to any termination of employment by the Employee for any of the following reasons:

(1) a material reduction in the Employee's duties and responsibilities, which for purposes of this Agreement means the assignment to Employee of any duties or responsibilities which are materially inconsistent with or adverse to the Employee's then current duties, responsibilities, positions and/or titles with the Employer;

(2) a material reduction of the Employee's then-current base salary or target bonus opportunity;

(3) the requirement that the Employee regularly report to work at a location that is more than fifty (50) miles from the location of the Employee's employment as of the Effective Date;

(4) a material breach of this Agreement by the Employer; or

(5) in the event of the assignment of this Agreement to a third party, the failure of the assignee or successor entity to agree to be bound to the terms of this Agreement;

(6) the consummation of a Change of Control of the Employer, as such term is defined herein.

provided, however, that except with respect to Section 4(g)(vi) (6) above, for any of the foregoing to constitute Good Reason, the Employee must provide written notification of his intention to resign within ninety (90) days after the Employee first knows or first has reason to know of the occurrence of any such event or condition, and, the Employer must have thirty (30) business days from the date of receipt of such notice to effect a cure of the event or condition constituting Good Reason. If the Employer fails to effect a cure of the event or condition constituting Good Reason, the Employee must actually resign from employment within thirty (30) days following the expiration of the foregoing cure period. In the event of a cure of such event or condition constituting Good Reason by the Employer, such event or condition shall no longer constitute Good Reason.

(vii) "Grant" shall mean a stock option, stock appreciation right, stock award, stock unit or other stock based award granted to Employee.

(viii) "Grant Instrument shall mean the written agreement that sets forth the terms and conditions of a Grant, including any amendments thereto.

(ix) "Termination Date" shall mean the date on which the Employee's employment with the Employer terminates in accordance with the applicable provisions of this Agreement.

(x) "Total Disability," shall mean an illness, incapacity or a mental or physical condition that renders the Employee unable, despite the provision, if requested, of a reasonable accommodation as that term is defined in the Americans with Disabilities Act, to perform the essential functions of his employment position for a continuous period of six (6) months or more.

(i) No Mitigation. The Employee shall not be required to mitigate the amount of any payment provided for in this Section 4 by seeking other employment or otherwise, nor shall the amount of any payment or benefit provided for in this Section 4 be reduced by any compensation earned by the Employee as the result of employment by another employer or self-employment, by retirement benefits, by offset against any amounts (other than loans or advances to the Employee by the Employer) claimed to be owed by the Employee to the Employer, or otherwise, provided, however, that if Employee becomes eligible for a group health insurance

plan during the Severance period, then Employee shall notify Employer of same and Employer shall be relieved of the obligation to make any premium contributions to the continuation of Employee's health insurance coverage.

5. Non-Disclosure; Non-Competition and Prior Agreements.

(a) Non-Disclosure. The Employee acknowledges that in the course of performing services for the Employer, the Employee will obtain knowledge of the Employer's business plans, products, processes, software, know-how, trade secrets, formulas, methods, models, prototypes, discoveries, inventions, improvements, disclosures, names and positions of employees and/or other proprietary and/or confidential information (collectively the "Confidential Information"). The Employee agrees to keep the Confidential Information secret and confidential and not to publish, disclose or divulge to any other party, and the Employee agrees not to use any of the Confidential Information for the Employee's own benefit or to the detriment of the Employer without the prior written consent of the Employer, whether or not such Confidential Information was discovered or developed by the Employee. The Employee also agrees not to divulge, publish or use any proprietary and/or confidential information of others that the Employer is obligated to maintain in confidence.

(b) Non-Competition. The Employee agrees that, during his employment by the Employer hereunder and for an additional period of nine (9) months after the termination of the Employee's employment hereunder for any reason, neither the Employee nor any corporation or other entity in which the Employee may be interested as a partner, trustee, director, officer, employee, agent, shareholder, lender of money or guarantor, or for which he performs services in any capacity (including as a consultant or independent contractor) shall at any time during such period be engaged, directly or indirectly, in any Competitive Business (as that term is hereinafter defined). The Employee shall not solicit or, if the Employee owns or has the right to acquire more than five percent (5%) of the fully-diluted equity of the employing entity or its affiliates, hire, directly or indirectly, any person that was employed by Employer during the nine (9) month period immediately preceding the Employee's termination of employment with the Employer. For purposes of this Section 5(b) the term "Competitive Business" shall mean any job, role, or specific responsibilities within a firm, company, or business organization that competes directly with the Employer's business as in effect at the time of the Employee's termination of employment with the Employer or in a business area planned in writing by the Employer before the Termination Date for entry within nine (9) months of the Termination Date at the time of the Employee's termination of employment with the Employer. The foregoing prohibition shall not prevent any employment or engagement of the Employee, after termination of employment with the Employer, by any firm, company, or business organization engaged in a Competitive Business as long as the activities of any such employment or engagement, in any capacity, do not involve work on matters related to any business, product or service being developed, manufactured, marketed, distributed or planned in writing by the Employer at the time of the Employee's termination of employment with the Employer. The Employee's ownership of no more than one percent (1%) of the outstanding voting stock of a publicly traded company shall not constitute a violation of this Section 5(b). The Employee is entering into this covenant not to compete in consideration of the agreements of the Employer in this Agreement, including but not limited to, the agreement of the Employer to provide the severance and other benefits to the Employee upon a termination of employment pursuant to Section 4(d) hereof and the agreement

of the Employer to provide the severance and other benefits upon a Change of Control in accordance with the terms of Section 4(e).

(c) Prior Agreements. The Employee represents and warrants to the Employer that there are no restrictions, agreements or understandings whatsoever to which the Employee is a party that would prevent or make unlawful the Employee's execution of this Agreement or the Employee's employment hereunder, is or would be inconsistent or in conflict with this Agreement or the Employee's employment hereunder, or would prevent, limit or impair in any way the performance by the Employee of the obligations hereunder.

6. Inventions and Discoveries.

(a) Disclosure. The Employee shall promptly and fully disclose to the Employer, with all necessary detail, all developments, know-how, discoveries, inventions, improvements, concepts, ideas, formulae, processes and methods (whether copyrightable, patentable or otherwise) made, received, conceived, acquired or written by the Employee (whether or not at the request or upon the suggestion of the Employer, solely or jointly with others), during the period of his employment with the Employer that (i) result from, arise out of, or relate to any work, assignment or task performed by the Employee on behalf of the Employer, whether undertaken voluntarily or assigned to the Employee within the scope of his responsibilities to the Employer, or (ii) were developed using the Employer's facilities or other resources or in Employer time, or (iii) result from the Employee's use or knowledge of the Employer's Confidential Information, or (iv) relate to the Employer's business or any of the products or services being developed, manufactured or sold by the Employer or that may be used in relation therewith (collectively referred to as "Inventions"). The Employee hereby acknowledges that all original works of authorship that are made by the Employee (solely or jointly with others) within the above terms and that are protectable by copyright are "works made for hire," as that term is defined in the United States Copyright Act. The Employee understands and hereby agrees that the decision whether or not to commercialize or market any Invention developed by the Employee solely or jointly with others is within the Employer's sole discretion and for the Employer's sole benefit and that no royalty shall be due to the Employee as a result of the Employer's efforts to commercialize or market any such Invention.

(b) Assignment and Transfer. The Employee agrees to assign and transfer to the Employer all of the Employee's right, title and interest in and to the Inventions, and the Employee further agrees to deliver to the Employer any and all drawings, notes, specifications and data relating to the Inventions, and to sign, acknowledge and deliver all such further papers, including applications for and assignments of copyrights and patents, and all renewals thereof, as may be necessary to obtain copyrights and patents for any Inventions in any and all countries and to vest title thereto in the Employer and its successors and assigns and to otherwise protect the Employer's interests therein. The Employee shall not charge the Employer for time spent in complying with these obligations. If the Employer is unable because of the Employee's mental or physical incapacity or for any other reason to secure the Employee's signature to apply for or to pursue any application for any United States or foreign patents or copyright registrations covering Inventions or original works of authorship assigned to the Employer as above, then the Employee hereby irrevocably designates and appoints the Employer and its duly authorized officers and agents as the Employee's agent and attorney in fact, to act for and in the Employee's behalf and stead to execute and file any such applications and to do all other lawfully permitted

acts to further the prosecution and issuance of letters patent or copyright registrations thereon with the same legal force and effect as if executed by the Employee.

(c) Records. The Employee agrees that in connection with any research, development or other services performed for the Employer, the Employee will maintain careful, adequate and contemporaneous written records of all Inventions, which records shall be the property of the Employer.

7. Employer Documentation. The Employee shall hold in a fiduciary capacity for the benefit of the Employer all documentation, disks, programs, data, records, drawings, manuals, reports, sketches, blueprints, letters, notes, notebooks and all other writings, electronic data, graphics and tangible information and materials of a secret, confidential or proprietary information nature relating to the Employer or the Employer's business that are in the possession or under the control of the Employee.

8. Injunctive Relief. The Employee acknowledges that his compliance with the agreements in Sections 5, 6, and 7 hereof is necessary to protect the good will and other proprietary interests of the Employer and that he is one of the principal executives of the Employer and conversant with its affairs, its trade secrets and other proprietary information. The Employee acknowledges that a breach of any of his agreements in Sections 5, 6 and 7 hereof will result in irreparable and continuing damage to the Employer for which there will be no adequate remedy at law; and the Employee agrees that in the event of any breach of the aforesaid agreements, the Employer and its successors and assigns shall be entitled to injunctive relief and to such other and further relief as may be proper.

9. Application of Section 409A of the Internal Revenue Code.

(a) Compliance. This Agreement shall be interpreted to avoid any penalty sanctions under section 409A of the Code. If any payment or benefit cannot be provided or made at the time specified herein without incurring sanctions under section 409A of the Code, then such benefit or payment shall be provided in full at the earliest time thereafter when such sanctions will not be imposed. For purposes of section 409A of the Code, all payments to be made upon a termination of employment under this Agreement may only be made upon a "separation from service" under section 409A of the Code, each payment made under this Agreement shall be treated as a separate payment, and the right to a series of installment payments under this Agreement is to be treated as a right to a series of separate payments. In no event shall the Employee, directly or indirectly, designate the calendar year of payment. All reimbursements provided under this Agreement shall be made or provided in accordance with the requirements of section 409A of the Code, including, where applicable, the requirement that (i) any reimbursement is for expenses incurred during the Employee's lifetime (or during a shorter period of time specified in this Agreement), (ii) the amount of expenses eligible for reimbursement during a calendar year may not affect the expenses eligible for reimbursement in any other calendar year, (iii) the reimbursement of an eligible expense will be made on or before the last day of the calendar year following the year in which the expense is incurred, and (iv) the right to reimbursement is not subject to liquidation or exchange for another benefit.

(b) Payment Delay. Notwithstanding any provision in this Agreement to the contrary, if at the time of the Employee's termination of employment with the Employer, the

Employer has securities which are publicly-traded on an established securities market and the Employee is a "specified employee" (as defined in section 409A of the Code) and it is necessary to postpone the commencement of any severance payments otherwise payable pursuant to this Agreement as a result of such termination of employment in order to prevent any accelerated or additional tax under section 409A of the Code, then the Employer shall postpone the commencement of the payment of any such payments or benefits hereunder (without any reduction in such payments or benefits ultimately paid or provided to the Employee) that are not otherwise paid within the short-term deferral exception under section 409A of the Code and are in excess of the lesser of two (2) times (i) the Employee's then-annual compensation or (ii) the limit on compensation then set forth in section 401(a)(17) of the Code, until the first payroll date that occurs after the date that is six (6) months following the Employee's "separation from service" with the Employer (as defined under section 409A of the Code). If any payments are postponed due to such requirements, such postponed amounts shall be paid in a lump sum to the Employee, and any installment payments due to the Employee shall recommence, on the first payroll date that occurs after the date that is six (6) months following the Employee's "separation from service" with the Employer. If the Employee dies during the postponement period prior to the payment of the postponed amount, the amounts withheld on account of section 409A of the Code shall be paid to the personal representative of the Employee's estate within sixty (60) days after the date of the Employee's death.

10. Supersedes Other Agreements. This Agreement supersedes and is in lieu of any and all other employment arrangements between the Employee and the Employer.

11. Amendments. Any amendment to this Agreement shall be made in writing and signed by the parties hereto.

12. Enforceability. If any provision of this Agreement shall be invalid or unenforceable, in whole or in part, then such provision shall be deemed to be modified or restricted to the extent and in the manner necessary to render the same valid and enforceable, or shall be deemed excised from this Agreement, as the case may require, and this Agreement shall be construed and enforced to the maximum extent permitted by law as if such provision had been originally incorporated herein as so modified or restricted or as if such provision had not been originally incorporated herein, as the case may be.

13. Governing Law. This Agreement shall be governed in all respects by the laws of the Commonwealth of Pennsylvania without regard to the conflicts of laws principles of any jurisdiction. Any legal proceeding arising out of or relating to this Agreement shall be instituted in the Pennsylvania state or Federal courts. Employee hereby consents to the personal and exclusive jurisdiction of such court and hereby waives any objection that the Employee may have to the laying of venue of any such proceeding and any claim or defense of inconvenient forum.

14. Jury Waiver. The Employer and Employee hereby waive trial by jury for all actions arising from or relating to any breaches or claimed breaches of this Agreement, or any circumstance or matter arising from or relating to Employee's employment by Employer.

15. Assignment.

(a) By the Employer. The rights and obligations of the Employer under this Agreement shall inure to the benefit of, and shall be binding upon, the successors and assigns of the Employer. This Agreement may be assigned by the Employer without the consent of the Employee. The Employer shall require any successor (whether direct or indirect, by purchase, merger, consolidation or otherwise) to all or substantially all of the business and/or assets of the Employer to expressly assume and agree to perform this Agreement in the same manner and to the same extent that the Employer would be required to perform it if no such succession had taken place. Unless expressly provided otherwise, "Employer" as used herein shall mean the Employer as defined in this Agreement and any successor to its business and/or assets as aforesaid.

(b) By the Employee. This Agreement and the obligations created hereunder may not be assigned by the Employee, but all rights of the Employee hereunder shall inure to the benefit of and be enforceable by his heirs, devisees, legatees, executors, administrators and personal representatives.

16. Notices. All notices required or permitted to be given hereunder shall be in writing and shall be deemed to have been given when mailed by certified mail, return receipt requested, or delivered by a national overnight delivery service addressed to the intended recipient as follows:

If to the Employer:
Zynerba Pharmaceuticals, Inc.
80 W. Lancaster Avenue, Suite 300
Devon, PA 19333
Attention: General Counsel

If to the Employee:
Brian K. Rosenberger
1041 Haverhill Road
Chester Springs, PA 19425

Any party may from time to time change its address for the *purpose* of notices to that party by a similar notice specifying a new address, but no such change shall be deemed to have been given until it is actually received by the party sought to be charged with its contents.

17. Waivers. No claim or right arising out of a breach or default under this Agreement shall be discharged in whole or in part by a waiver of that claim or right unless the waiver is supported by consideration and is in writing and executed by the aggrieved party hereto or his or its duly authorized agent. A waiver by any party hereto of a breach or default by the other party hereto of any provision of this Agreement shall not be deemed a waiver of future compliance therewith, and such provisions shall remain in full force and effect.

18. Indemnification. Employer agrees to indemnify, defend and hold harmless, Employee to the maximum extent permitted by law and under the by-laws and articles of incorporation of the Employer, as well as to cover Employee under any indemnification agreements or arrangements maintained by the Employer for its directors and officers from time to time, subject to the terms and conditions thereof. Employer specifically acknowledges and

agrees the obligations set forth herein include but are not limited to any and all claims, demands, investigations, suits or actions for any and all liabilities, losses, damages, penalties, costs or expenses of every kind whatsoever (including but not limited to court costs, legal fees, awards or settlements) arising out of, in connection with or related to any negligent or intentional act, error or omission of Employer, any predecessor entity of Employer, or any of their respective current or former directors, officers, employees, representatives or agents prior to the Effective Date of this Agreement.

19. Survival of Covenants. The provisions of Sections 5 through 18 hereof shall survive the termination of this Agreement. Furthermore, any other provision of this Agreement that, by its terms, is intended to continue beyond the termination of the Employee's employment shall continue in effect thereafter.

[signature page follows]

IN WITNESS WHEREOF, this Agreement has been executed by the parties as of the date first above written.

ZYNERBA PHARMACEUTICALS, INC.

By: /s/ Armando Anido
Armando Anido
Chief Executive Officer

EMPLOYEE

/s/ Brian Rosenberger
Brian Rosenberger

EXHIBIT A
NON-QUALIFIED STOCK OPTION AGREEMENT

Exhibit 31.1

CERTIFICATION

I, Armando Anido, certify that:

1. I have reviewed this quarterly report on Form 10-Q of Zynerba Pharmaceuticals, Inc.;

2. Based on my knowledge, this report does not contain any untrue statement of a material fact or omit to state a material fact necessary to make the statements made, in light of the circumstances under which such statements were made, not misleading with respect to the period covered by this report;

3. Based on my knowledge, the financial statements, and other financial information included in this report, fairly present in all material respects the financial condition, results of operations and cash flows of the registrant as of, and for, the periods presented in this report;

4. The registrant's other certifying officer and I are responsible for establishing and maintaining disclosure controls and procedures (as defined in Exchange Act Rules 13a-15(e) and 15d-15(e) and internal control over financial reporting (as defined in Exchange Act Rules 13a-15(f) and 15d-15(f)) for the registrant and have:

(a) Designed such disclosure controls and procedures, or caused such disclosure controls and procedures to be designed under our supervision, to ensure that material information relating to the registrant, including its consolidated subsidiaries, is made known to us by others within those entities, particularly during the period in which this report is being prepared;

(b) Designed such internal control over financial reporting, or caused such internal control over financial reporting to be designed under our supervision, to provide reasonable assurance regarding the reliability of financial reporting and the preparation of financial statements for external purposes in accordance with U.S. generally accepted accounting principles;

(c) Evaluated the effectiveness of the registrant's disclosure controls and procedures and presented in this report our conclusions about the effectiveness of the disclosure controls and procedures, as of the end of the period covered by this report based on such evaluation; and

(d) Disclosed in this report any change in the registrant's internal control over financial reporting that occurred during the registrant's most recent fiscal quarter (the registrant's fourth fiscal quarter in the case of an annual report) that has materially affected, or is reasonably likely to materially affect, the registrant's internal control over financial reporting; and

5. The registrant's other certifying officer and I have disclosed, based on our most recent evaluation of internal control over financial reporting, to the registrant's auditors and the audit committee of the registrant's board of directors (or persons performing the equivalent functions):

(a) All significant deficiencies and material weaknesses in the design or operation of internal control over financial reporting which are reasonably likely to adversely affect the registrant's ability to record, process, summarize and report financial information; and

(b) Any fraud, whether or not material, that involves management or other employees who have a significant role in the registrant's internal control over financial reporting.

By: /s/ Armando Anido
Name: Armando Anido
Title: Chairman and Chief Executive Officer

Dated: May 9, 2017

Exhibit 31.2

CERTIFICATION

I, James E. Fickenscher, certify that:

1. I have reviewed this quarterly report on Form 10-Q of Zynerba Pharmaceuticals, Inc.;

2. Based on my knowledge, this report does not contain any untrue statement of a material fact or omit to state a material fact necessary to make the statements made, in light of the circumstances under which such statements were made, not misleading with respect to the period covered by this report;

3. Based on my knowledge, the financial statements, and other financial information included in this report, fairly present in all material respects the financial condition, results of operations and cash flows of the registrant as of, and for, the periods presented in this report;

4. The registrant's other certifying officer and I are responsible for establishing and maintaining disclosure controls and procedures (as defined in Exchange Act Rules 13a-15(e) and 15d-15(e) and internal control over financial reporting (as defined in Exchange Act Rules 13a-15(f) and 15d-15(f)) for the registrant and have:

(a) Designed such disclosure controls and procedures, or caused such disclosure controls and procedures to be designed under our supervision, to ensure that material information relating to the registrant, including its consolidated subsidiaries, is made known to us by others within those entities, particularly during the period in which this report is being prepared;

(b) Designed such internal control over financial reporting, or caused such internal control over financial reporting to be designed under our supervision, to provide reasonable assurance regarding the reliability of financial reporting and the preparation of financial statements for external purposes in accordance with U.S. generally accepted accounting principles;

(c) Evaluated the effectiveness of the registrant's disclosure controls and procedures and presented in this report our conclusions about the effectiveness of the disclosure controls and procedures, as of the end of the period covered by this report based on such evaluation; and

(d) Disclosed in this report any change in the registrant's internal control over financial reporting that occurred during the registrant's most recent fiscal quarter (the registrant's fourth fiscal quarter in the case of an annual report) that has materially affected, or is reasonably likely to materially affect, the registrant's internal control over financial reporting; and

5. The registrant's other certifying officer and I have disclosed, based on our most recent evaluation of internal control over financial reporting, to the registrant's auditors and the audit committee of the registrant's board of directors (or persons performing the equivalent functions):

(a) All significant deficiencies and material weaknesses in the design or operation of internal control over financial reporting which are reasonably likely to adversely affect the registrant's ability to record, process, summarize and report financial information; and

(b) Any fraud, whether or not material, that involves management or other employees who have a significant role in the registrant's internal control over financial reporting.

By: /s/ James E. Fickenscher
Name: James E. Fickenscher
Title: Chief Financial Officer

Dated: May 9, 2017

Exhibit 32.1

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

In connection with the quarterly report of Zynerba Pharmaceuticals, Inc. (the "Company") on Form 10-Q for the fiscal quarter ended March 31, 2017 as filed with the Securities and Exchange Commission on the date hereof (the "Report"), I, Armando Anido, Chairman and Chief Executive Officer of the Company, certify, pursuant to 18 U.S.C. Section 1350, as adopted pursuant to Section 906 of the Sarbanes-Oxley Act of 2002, that:

(1) The Report fully complies with the requirements of section 13(a) or 15(d) of the Securities Exchange Act of 1934; and

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

/s/ Armando Anido
Armando Anido
Chairman and Chief Executive Officer

Dated: May 9, 2017

Exhibit 32.2

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

In connection with the quarterly report of Zynerba Pharmaceuticals, Inc. (the "Company") on Form 10-Q for the fiscal quarter ended March 31, 2017 as filed with the Securities and Exchange Commission on the date hereof (the "Report"), I, James E. Fickenscher, Chief Financial Officer of the Company, certify, pursuant to 18 U.S.C. Section 1350, as adopted pursuant to Section 906 of the Sarbanes-Oxley Act of 2002, that:

(1) The Report fully complies with the requirements of section 13(a) or 15(d) of the Securities Exchange Act of 1934; and

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

/s/ James E. Fickenscher
James E. Fickenscher
Chief Financial Officer

Dated: May 9, 2017