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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 September 30, 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 November 10, 2017, there were 13,553,873 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 follow-on offering during the first quarter of 2017;
- 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)

	September 30, 2017	December 31, 2016
Assets		
Current assets:		
Cash and cash equivalents	$ 66,251,286	$ 30,965,791
Incentive and tax receivables	3,617,956	3,613,943
Prepaid expenses and other current assets	3,010,144	1,830,958
Total current assets	72,879,386	36,410,692
Property and equipment, net	190,370	143,382
Other assets	200	200
Total assets	$ 73,069,956	$ 36,554,274
Liabilities and Stockholders' Equity		
Current liabilities:		
Accounts payable	$ 3,116,100	$ 1,848,084
Accrued expenses	4,479,292	4,284,907
Deferred grant revenue	833,975	833,975
Total current liabilities	8,429,367	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; 13,257,279 shares issued and outstanding at September 30, 2017 and 9,994,825 shares issued and outstanding at December 31, 2016	13,257	9,995
Additional paid-in capital	134,489,599	75,545,875
Accumulated deficit	(69,862,267)	(45,968,562)
Total stockholders' equity	64,640,589	29,587,308
Total liabilities and stockholders' equity	$ 73,069,956	$ 36,554,274

See accompanying notes to unaudited consolidated financial statements.

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

	Three months ended September 30,		Nine months ended September 30,	
	2017	2016	2017	2016
Revenue	$ —	$ —	$ —	$ 7,250
Operating expenses:				
Research and development	5,753,764	4,504,097	16,978,016	11,880,264
General and administrative	2,795,839	1,493,461	7,640,489	4,649,948
Total operating expenses	8,549,603	5,997,558	24,618,505	16,530,212
Loss from operations	(8,549,603)	(5,997,558)	(24,618,505)	(16,522,962)
Other income (expense):				
Interest income	161,930	22,747	363,350	53,243
Foreign exchange gain (loss)	76,468	(6,270)	361,450	(49,668)
Total other income (expense)	238,398	16,477	724,800	3,575
Loss before income taxes	(8,311,205)	(5,981,081)	(23,893,705)	(16,519,387)
Income tax benefit	—	—	—	(27,543)
Net loss	$ (8,311,205)	$ (5,981,081)	$ (23,893,705)	$ (16,491,844)
Net loss per share basic and diluted	$ (0.63)	$ (0.67)	$ (1.87)	$ (1.86)
Basic and diluted weighted average shares outstanding	13,098,914	8,912,508	12,743,332	8,865,854

See accompanying notes to unaudited consolidated financial statements.

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

	Common stock		Additional	Accumulated	Total stockholders'
	Shares	Amount	paid-capital	deficit	equity
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
Exercise of stock options	42,454	42	434,649	—	434,691
Stock-based compensation expense	—	—	4,266,716	—	4,266,716
Net loss	—	—	—	(23,893,705)	(23,893,705)
Balance at September 30, 2017	**13,257,279**	**$13,257**	**$134,489,599**	**$ (69,862,267)**	**$ 64,640,589**

See accompanying notes to unaudited consolidated financial statements.

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

	Nine months ended September 30,	
	2017	2016
Cash flows from operating activities:		
Net loss	$ (23,893,705)	$ (16,491,844)
Adjustments to reconcile net loss to net cash used in operating activities:		
Depreciation	68,368	53,294
Stock-based compensation	4,266,716	2,381,942
Changes in operating assets and liabilities:		
Incentive and tax receivables	(4,013)	(1,924,487)
Prepaid expenses and other assets	(914,554)	(239,652)
Deferred grant revenue	—	(7,250)
Accounts payable	1,154,109	687,449
Accrued expenses	194,385	609,069
Net cash used in operating activities	(19,128,694)	(14,931,479)
Cash flows from investing activities:		
Purchases of property and equipment	(91,070)	(86,726)
Net cash used in investing activities	(91,070)	(86,726)
Cash flows from financing activities:		
Proceeds from the issuance of common stock, net of offering costs	54,245,579	5,285,918
Payment of financing costs	(175,011)	—
Proceeds from the exercise of stock options	434,691	—
Net cash provided by financing activities	54,505,259	5,285,918
Net increase (decrease) in cash and cash equivalents	35,285,495	(9,732,287)
Cash and cash equivalents at beginning of period	30,965,791	41,513,060
Cash and cash equivalents at end of period	$ 66,251,286	$ 31,780,773
Supplemental disclosures of cash flow information:		
Deferred financing costs included in accounts payable and accrued expenses	$ 89,621	$ 140,557
Property and equipment acquired but not yet paid	24,286	43,064

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"), is a clinical stage specialty pharmaceutical company dedicated to the development and commercialization of innovative transdermal pharmaceutically-produced cannabinoid treatments for patients with high unmet medical 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 $69.9 million as of September 30, 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.

On June 9, 2017, the Company entered into an Open Market Sales Agreement (the "Sales Agreement") with Jefferies LLC ("Jefferies") pursuant to which the Company may sell, from time to time, up to $50 million of its common stock. From September 28, 2017 through October 26, 2017, the Company has sold and issued 296,594 shares of common stock in the open market at a weighted average selling price of $10.74 per share, for gross proceeds of $3.2 million. Net proceeds after deducting underwriting and commissions and offering expenses were $3.0 million. None of the proceeds were settled prior to September 30, 2017, and therefore, the cash from the sale of these common shares will be recorded in the fourth quarter. The Sales Agreement replaced the Company's prior Open Market Sales Agreement with Jefferies, dated as of September 1, 2016, under which the Company sold 794,906 shares of its common stock in the open market at a weighted average selling price of $13.39 per share, for gross proceeds of $10.6 million during 2016.

Management believes that the cash and cash equivalents position as of September 30, 2017 is sufficient to develop five Phase 3-ready programs and initiate at least one pivotal 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 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 September 30, 2017 and its results of operations and cash flows for the nine months ended September 30, 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.

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 cash refund is available to eligible companies with an annual aggregate revenue of less than $20.0 million (Australian) during the reimbursable period. 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. The Company's estimate of the amount of cash refund it expects to receive as part of this incentive program for 2017 eligible spending through September 30, 2017 was $3.3 million and was recorded as a current asset. During the three months ended September 30, 2017, the Company received $3.6 million in research and development tax incentive refunds related to qualified Australian expenses incurred during the year ended December 31, 2016.

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 incurred is included in "Incentive and tax receivables" in the accompanying consolidated balance sheets. As of September 30, 2017, incentive and tax receivables included $0.3 million for GST on expenses incurred with Australian vendors during the three months ended September 30, 2017.

d. 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 GST incurred on services provided by Australian vendors.

e. 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 restricted stock and stock options would be anti-dilutive.

The following potentially dilutive securities outstanding as of September 30, 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:

	September 30,	
	2017	2016
Stock options	2,369,296	1,793,493
Unvested restricted stock	144,972	289,942
	2,514,268	2,083,435

f. 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 that serves 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.

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

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 September 30, 2017 and December 31, 2016:

	Carrying amount as of September 30, 2017	Fair Value Measurement as of September 30, 2017		
		Level 1	Level 2	Level 3
Cash equivalents (money market accounts)	$ 62,685,657	$ 62,685,657	$ —	$ —
Certificate of deposit (included in prepaid expenses and other current assets)	20,000	20,000	—	—
	$ 62,705,657	$ 62,705,657	$ —	$ —

	Carrying amount 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 of September 30, 2017 and December 31, 2016:

	September 30, 2017	December 31, 2016
Prepaid development expenses	$ 2,069,289	$ 1,473,402
Prepaid insurance	462,932	321,463
Deferred financing costs	264,632	—
Other current assets	213,291	36,093
Total prepaid expenses and other current assets	$ 3,010,144	$ 1,830,958

Included in prepaid development expenses above is research and grant funding received that was remitted to third-party research organizations of $0.8 million as of September 30, 2017 and December 31, 2016, respectively, that will be recognized as research projects progress and expenses are incurred.

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

(5) Property and Equipment

Property and equipment consisted of the following as of September 30, 2017 and December 31, 2016:

	Estimated useful life (in years)	September 30, 2017	December 31, 2016
Equipment	2-5	$ 85,417	$ 85,417
Computer equipment	3-5	30,319	27,111
Furniture and fixtures	3-5	199,016	99,731
Leasehold improvements	various	12,863	—
Total cost		327,615	212,259
Less accumulated depreciation		(137,245)	(68,877)
Property and equipment, net		$ 190,370	$ 143,382

Depreciation expense was $24,773 and $25,844 for the three months ended September 30, 2017 and 2016, respectively, and $68,368 and $53,294 for the nine months ended September 30, 2017 and 2016, respectively.

(6) Accrued Expenses

Accrued expenses consisted of the following as of September 30, 2017 and December 31, 2016:

	September 30, 2017	December 31, 2016
Accrued compensation	$ 1,174,444	$ 1,349,108
Accrued research and development	3,037,330	2,628,681
Other	267,518	307,118
Total accrued expenses	$ 4,479,292	$ 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.

On June 9, 2017, the Company entered into the Sales Agreement with Jefferies pursuant to which the Company may sell, from time to time, up to $50.0 million of its common stock. From September 28, 2017 through October 26, 2017, the Company has sold and issued 296,594 shares of common stock in the open market at a weighted average selling price of $10.74 per share, for gross proceeds of $3.2 million. Net proceeds after deducting underwriting and commissions and offering expenses were $3.0 million. None of the proceeds were settled prior to September 30, 2017, and therefore, the cash from the sale of these common shares will be recorded in the fourth quarter. The Sales Agreement replaced the Company's prior Open Market Sales Agreement with Jefferies, dated as of September 1, 2016, under which the Company sold 794,906 shares of its common stock in the open market at a weighted average selling price of $13.39 per share, for gross proceeds of $10.6 million during 2016.

(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 September 30, 2017, 591,893 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 generally vest over a period of not greater than four 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. Effective April 1, 2017, the Company revised its non-employee director compensation policy to enable directors to receive stock options in lieu of quarterly cash payments. Any option granted to the directors in lieu of cash compensation vests in full on the date of grant.

For the nine months ended September 30, 2017 and 2016, the Company recorded stock-based compensation expense related to its stock option grants and restricted stock awards, as follows:

	Nine Months Ended September 30, 2017			Nine Months Ended September 30, 2016		
	Research and Development	General and Administrative	Total	Research and Development	General and Administrative	Total
Stock option grants	$ 1,604,346	$ 2,482,490	$ 4,086,836	$ 811,937	$ 1,390,125	$ 2,202,062
Restricted stock awards	118,110	61,770	179,880	104,099	75,781	179,880
	$ 1,722,456	$ 2,544,260	$ 4,266,716	$ 916,036	$ 1,465,906	$ 2,381,942

The following table summarizes the stock option activity for the nine months ended September 30, 2017:

	Number of Shares	Weighted-Average Exercise Price	Weighted-Average Contractual Life (in Years)	Aggregate Intrinsic Value
Outstanding as of December 31, 2016	1,808,493	$ 10.22		
Granted	622,357	$ 19.20		
Exercised	(42,454)	$ 10.24		
Forfeited	(19,100)	$ 15.48		
Outstanding as of September 30, 2017	2,369,296	$ 12.54	8.18	$ 2,417,769
Exercisable as of September 30, 2017	1,075,106	$ 9.62	7.67	$ 1,823,679
Vested and expected to vest as of September 30, 2017	2,369,296	$ 12.54		

During the nine months ended September 30, 2017, the Company granted 622,357 stock options to employees and the Company's Board of Directors, including 5,407 stock options that were granted to certain members of the Board of Directors, at their election, in lieu of quarterly cash payments. The weighted-average grant date fair value of options granted during the nine months ended September 30, 2017 and 2016 was $13.08 and $6.30, respectively.

The fair values of stock options granted were calculated using the Black-Scholes option pricing model with the following weighted-average assumptions:

	Nine months ended September 30,	
	2017	2016
Weighted-average risk-free interest rate	2.11%	1.50%
Expected term of options (in years)	6.13	6.00
Expected stock price volatility	77.00%	77.00%
Expected dividend yield	0%	0%

As of September 30, 2017, there was $11.1 million of unrecognized stock-based compensation expense related to stock options, which is expected to be recognized over a weighted-average period of 2.62 years.

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

The following table summarizes the restricted stock award activity under the 2014 Plan for the nine months ended September 30, 2017:

	Shares	Weighted Average Grant Date Fair Value
Unvested as of December 31, 2016	253,702	$ 1.65
Vested	(108,730)	$ 1.65
Unvested as of September 30, 2017	144,972	$ 1.65

As of September 30, 2017, there was $0.2 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 0.85 years. The Company expects all 144,972 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 the development and commercialization of innovative transdermal pharmaceutically-produced cannabinoid treatments for patients with high unmet medical needs. We are evaluating two patent protected product candidates, ZYN002 and ZYN001, in five indications. 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.

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 Fragile X syndrome, or FXS, osteoarthritis, or OA, and epilepsy, and THC has positive effects on treating pain. We believe ZYN002 may potentially offer first-line therapies to patients suffering from FXS, OA and epilepsy, and ZYN001 may potentially offer first-line therapies to patients suffering from fibromyalgia and peripheral neuropathic pain.

We have never been profitable and have incurred net losses since inception. Our net losses were $23.9 million and $16.5 million for the nine months ended September 30, 2017 and 2016, respectively. As of September 30, 2017, our accumulated deficit was $69.9 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.

Product Candidates

ZYN002 – CBD Gel

ZYN002 is the first and only pharmaceutically-produced 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 FXS, OA and epilepsy, 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.

ZYN002 for the treatment of pediatric and adolescent patients with Fragile X syndrome

FXS is a genetic condition that causes intellectual disability, anxiety disorders, behavioral and learning challenges and various physical characteristics. The impairment can range from learning disabilities to more severe cognitive or

intellectual disabilities. FXS is an autism spectrum disorder, and patients with FXS exhibit autism-like symptoms including cognitive impairment, anxiety and mood swings, attention deficit and heightened response to stimuli. Currently, there are no known cures or approved therapies for the treatment of FXS. Special education and symptomatic treatments for anxiety and irritability are employed to lessen the burden of illness. Based on the 2012 U.S. Census and the National Fragile X Foundation, FXS prevalence rates are estimated at approximately 71,000 patients in the United States. According to the National Fragile X Foundation, FXS affects 1 in 3,600 to 4,000 males and 1 in 4,000 to 6,000 females of all races and ethnic groups.

We believe ZYN002 may provide an effective treatment for FXS based on its capacity to interact with the endocannabinoid system, which is compromised in patients with FXS. Specifically, CBD indirectly increases the concentration of the cannabinoids 2-AG and anandamide, which are endogenous ligands at the CB_1 and CB_2 receptors. Furthermore, the Fragile X mental retardation protein 1 that is diminished in patients with FXS, is required for the production of 2-AG. Therefore, FXS results in the reduction of endogenous stimulation of endocannabinoid receptors while CBD facilitates the availability of endogenous endocannabinoids, potentially attenuating the pathophysiology of the disease. We anticipate ZYN002 may be used as monotherapy in patients with FXS.

In December 2016, we initiated an open-label exploratory Phase 2 clinical trial designed to evaluate the safety and efficacy of ZYN002 in children with FXS, which we refer to as the FAB-C (Treatment of **F**ragile X Syndrome **A**nxiety and **B**ehavioral Challenges with **C**BD) trial. The primary endpoint for the trial was the change in the total score of the Anxiety, Depression, and Mood Scale, or ADAMS, from baseline to week 12. The ADAMS is a 28-item scale designed to assess general anxiety, social avoidance, compulsive behavior, manic/hyperactive behavior, and depressed mood. It has been validated in patients with FXS. Twenty patients (3:1 males) aged 6 to 17 years of age (mean = 10.7) with FXS as confirmed by molecular documentation of FMR1 full mutation were enrolled in the open-label FAB-C study. ZYN002 was added on to other medications being administered. The first six weeks of the study were designed to titrate dosing in patients. Dosing was initiated at 50 mg daily and could be increased to 250 mg daily. Weeks 7 through 12 of the study was a maintenance period where patients were treated at the dose established at week six. At the completion of the study, patients could enter an open-label extension study for up to 12 months.

In September 2017, we released the efficacy analysis for the FAB-C trial. The study successfully met its primary endpoint, achieving a 46% improvement ($p<0.0001$) in the total score of ADAMS at week twelve compared to baseline. ZYN002 also achieved clinically meaningful improvements in all measures of the Aberrant Behavior Checklist for Fragile X, or ABC-FXS, which address the key symptoms of FXS including social avoidance, temper tantrums, repetitive movements, and hyperactivity.

Results for the ADAMS are summarized as follows:

ADAMS	Baseline	Week 12	Change in Score	% Improvement	p Value
Total Score (primary endpoint)	33.4	18.1	(14.1)	45.81%	<0.0001
General Anxiety Subscale*	10.0	4.6	(4.8)	54.00%	<0.0001
Social Avoidance Subscale*	10.2	4.8	(5.1)	52.94%	0.0002
Compulsive Behavior Subscale*	2.8	1.4	(1.2)	50.00%	0.0262
Manic / Hyperactive Behavior Subscale*	9.4	6.1	(2.7)	35.11%	0.0003
Depressed Mood Subscale*	2.8	2.0	(0.9)	28.57%	0.1417

*Secondary endpoint

We evaluated multiple other secondary endpoints including the ABC-FXS, a Clinical Global Impression of Improvement, or CGI-I, the Pediatric Anxiety Rating Scale, or PARS-R, Visual Analog Scales for Anxiety, Hyperactivity and Tantrum/Mood Lability, the Vineland Adaptive Behavior III, a Quality of Sleep measurement and the Pediatric Quality of Life, or PedsQL™. The results of the secondary endpoints reinforce the results demonstrated in the ADAMS.

Results from the ABC-FXS are summarized as follows:

Aberrant Behavior Checklist (ABC)	Baseline	Week 12	Change in Score	% Improvement	p Value
Irritability - "Has Temper Tantrums"	18.2	10.6	(7.1)	41.76%	0.0096
Hyperactivity - "Disrupts Group Activities"	14.5	9.7	(4.1)	33.10%	0.0194
Socially Unresponsive/Lethargic - "Does Not Pay Attention"	8.7	4.1	(5.1)	52.87%	0.0034
Social Avoidance - "Seeks Isolation"	5.1	2.3	(2.8)	54.90%	0.0005
Stereotypy - "Repetitive Movements"	7.9	3.2	(4.9)	59.49%	0.0006
Inappropriate Speech - "Repeats Words or Phrases"	6.1	3.5	(2.4)	42.62%	0.0018

ZYN002 was shown to be very well tolerated, and the safety profile was consistent with previously released data from clinical trials. Two patients, who were siblings, discontinued due to worsening of pre-existing eczema. Four other patients experienced an adverse event. No adverse events were considered severe. No patient experienced drug-related GI events during the 12-week treatment period, and no THC was detected in the plasma. Thirteen of the 18 patients who completed the study have enrolled in the open-label extension.

We anticipate having a meeting with the FDA in the first quarter of 2018 to discuss the design and endpoints for a pivotal program. We anticipate beginning the pivotal program in the first half of 2018.

ZYN002 for the treatment of osteoarthritis

OA is a degenerative joint disease that leads to wear and tear of the joints and affects the cartilage, joint lining, ligaments and bone. It is the most common form of joint disease and tends to occur most often in the hand joints, spine, hip, knees and great toes. It is characterized by the breakdown of the joint cartilage, bony changes in the joints and deterioration of the tendons and ligaments leading to pain and inflammation of the joint lining. We believe that ZYN002 may provide an effective treatment for OA based on research we have conducted and anticipate ZYN002 may be used as monotherapy in patients with OA.

According to Data Monitor information from 2009 and further adjusted to account for annual growth rates, it is predicted that the total number of U.S. adults (25 years of age or older) with OA will be approximately 31 million in 2017. In addition, based on estimates from Decision Resources, treatment for patients suffering from OA is predicted to represent a total U.S. market size of approximately $1.3 billion in 2017.

In August 2016, we initiated a Phase 2 randomized, double-blind, multi-center, multi-dose clinical trial designed to evaluate the efficacy and safety of ZYN002 in adult patients with knee pain due to OA, which we refer to as the STOP (**S**ynthetic **T**ransdermal Cannabidi**o**l for the Treatment of Knee **P**ain due to Osteoarthritis) trial.

Three hundred and twenty (320) patients aged 41 to 78 years of age with confirmed osteoarthritis of the knee were randomized in the double-blind, multi-center STOP trial. Patients who completed the one-week washout and the seven-to-10-day baseline phase were randomized 1:1:1 to receive either 250 mg of ZYN002 4.2% CBD gel daily, 500 mg of ZYN002 daily, or placebo, for 12 weeks. Enrolled patients had a mean worst knee pain score of 6.9 on a scale of 1 to 10 during baseline.

In August 2017, we released the efficacy analysis for the STOP trial. The study did not meet its primary endpoint of reduction from baseline in the weekly mean of the 24-hour average worst pain score at week 12 for either dose. Across all participants, patients on 250 mg of ZYN002 daily achieved a 2.64 mean reduction from baseline in average worst knee pain scores at week 12; patients on 500 mg of ZYN002 daily achieved a 2.83 mean reduction from baseline in average worst knee pain scores at week 12; and patients on placebo achieved a 2.37 mean reduction from baseline in average worst knee pain scores at week 12. These results were not statistically significant.

However, statistically significant results were achieved for a number of secondary endpoints. Importantly, the composite responder analysis (defined as a ≥30 percent reduction in worst average daily pain scores and a ≥20 percent improvement in the WOMAC physical function score) for 250 mg daily of ZYN002 4.2% CBD gel achieved statistical significance (p=0.016). A trend toward statistical significance was observed in other secondary endpoints.

ZYN002 was shown to be very well tolerated and the safety profile was consistent with previously released data from clinical trials. Of the patients in the safety database, 50% (n=106) of the patients on ZYN002 had at least one treatment emergent adverse event, compared to 42% (n=45) of patients on placebo. There were two treatment emergent/treatment related adverse events that exceeded 3% of the patients on ZYN002 and were greater than placebo: application site dryness (3.8%, n=8; placebo 0.9%, n=1) and headache (3.3%, n=7; placebo 1.9%, n=2). There was one (0.5%) treatment related serious adverse event on ZYN002 and three (2.8%) treatment related serious adverse events reported on placebo. Discontinuation from the study was 22.5% (n=48) for patients on ZYN002 and 33.6% (n=36) for patients on placebo. There were twelve (5.6%) patients that discontinued due to adverse events on ZYN002 and 8 (7.5%) that discontinued due to adverse events on placebo.

We anticipate that we will meet with the FDA in the first quarter of 2018 to discuss the results of the study and next steps. We expect to initiate a pivotal phase 2/3 program in 2018.

ZYN002 for the treatment of refractory epileptic focal seizures

Epilepsy is a disease characterized by an enduring predisposition to generate epileptic seizures (transient symptoms due to abnormal neuronal activity in the brain) and by the neurobiological, cognitive, psychological, and social consequences of the condition. Focal seizures usually start in a small area of the temporal lobe or frontal lobe of the brain and quickly involve other areas of the brain that affect alertness and awareness. Focal seizures are the most common type of seizure, representing approximately 60% of all epilepsies.

According to Decision Resources, in 2017 there are expected to be approximately 2.4 million epilepsy patients in the United States, of which approximately 60% suffer from focal seizures, and treatments for these patients are expected to represent a total U.S. market size of approximately $2.5 billion.

We believe that ZYN002 may provide an effective treatment for epilepsy based on the anticonvulsant effects of CBD due to its ability to reduce neuronal hyperexcitability shown in multiple *in vivo* models of epilepsy conducted by third parties. Epilepsy specialists and patient organizations have shown considerable interest in the potential therapeutic role of CBD in adults with epilepsy and, especially, children with intractable epilepsy. Two companies have active CBD development programs for the treatment of patients with Dravet syndrome, or DS, or Lennox Gastaut syndrome, or LGS, infantile spasms and tuberous sclerosis complex, all of which are rare and severe forms of pediatric epilepsy. Unlike these cannabinoid-based childhood orphan epilepsy development programs, we are conducting development programs for ZYN002 for the treatment of epilepsy in patients with focal seizures, a much broader subset of the epilepsy population.

In June 2016, we initiated a Phase 2 randomized, double-blind, multi-center, multi-dose clinical trial designed to evaluate the efficacy and safety of ZYN002 in adult patients with refractory epileptic focal seizures, which we refer to as the STAR 1 (**S**ynthetic **T**ransdermal Cann**a**bidiol for the T**r**eatment of Epilepsy) trial. In this trial, 188 patients were randomized to receive (i)195 mg of ZYN002 4.2% CBD gel every 12 hours, (ii) 97.5 mg of ZYN002 4.2% CBD gel every 12 hours or (iii) placebo gel every 12 hours for 12 weeks. Patients aged 18 to 71 years old with confirmed refractory epilepsy with focal seizures with or without secondary generalization were enrolled in this study. Enrolled patients had a median monthly seizure frequency of 10.6, and were on an average of 2.5 anti-epileptic drugs, or AEDs. The primary endpoint assessed the median percentage change in seizure frequency over the 12-week treatment period compared to the 8-week baseline period. Secondary endpoints included proportion of patients with ≥50% reduction from baseline in seizure frequency, percent change from baseline in seizure Safety and tolerability were also evaluated. The study was conducted at 14 sites in Australia and New Zealand.

In August 2017, we released the efficacy analysis for the STAR 1 trial. Patients on the low dose of ZYN002 (n=63) achieved an 18.4% median reduction in focal seizures during the treatment period compared to baseline; patients on the high dose of ZYN002 (n=62) achieved a 14.0% median reduction in focal seizures during the treatment period compared to baseline; and patients on placebo (n=63) achieved an 8.7% median reduction in focal seizures during the treatment period compared to baseline. These results were not statistically significant. Similarly, none of the secondary endpoints showed statistically significant differences between ZYN002 and placebo.

ZYN002 was shown to be very well tolerated and the safety profile was consistent with previously released data from the Phase 1 trials. Of the 188 patients in the safety database, 50% of the patients on ZYN002 (n=63) had at least one treatment emergent adverse event, compared to 41% (n=26) of patients on placebo. Two treatment emergent adverse events occurred in greater than 5% of the patients on ZYN002: fatigue (5.6%, placebo, 1.6%) and headache (5.6%,

placebo, 3.2%). There were no treatment related serious adverse events reported. The discontinuation rate in the trial for ZYN002 was 10.4% compared to 1.6% in placebo.

In November 2016, we announced that we initiated a 12-month open-label extension clinical trial, or STAR 2, for patients who successfully complete the STAR 1 trial. Of the 175 patients who completed the STAR 1 trial, 171 elected to enter the STAR 2 trial and as of November 13, 2017, 100 patients are still in the trial. 89 patients have achieved at least six months of treatment within the STAR 2 trial. We are encouraged by the continued reduction in seizures that we are seeing in patients who continue to receive therapy, noting that most patients are seeing clinically meaningful (>50%) reductions in seizures.

Further analysis of data from STAR 1 and STAR 2 will clarify the study design and inclusion / exclusion criteria ahead of a new Phase 2 clinical study. We expect to outline our path forward in epilepsy in the first quarter of 2018.

ZYN001 – THC Pro-Drug Patch

ZYN001 is a pro-drug of THC that is designed to enable 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.

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 currently represent multi-billion-dollar markets. We initiated Phase 1 clinical trials for ZYN001 in June of 2017 and results from this study are now expected in the first half of 2018. These data will inform the planned Phase 2 program for ZYN001, now expected to initiate in 2018.

Clinical Development Timelines

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

Product	Indication / Study	Key Milestone	Timing
ZYN002	Fragile X Syndrome	FDA Meeting	Q1 2018
		Phase 2/3 Initiation	1H 2018
ZYN002	Osteoarthritis	FDA Meeting	Q1 2018
		Phase 2/3 Initiation	2018
ZYN002	Epilepsy	Path Forward	Q1 2018
ZYN001	Safety & PK	Phase 1 Results	1H 2018
ZYN001	Fibromyalgia	Phase 2 Initiation	2018
ZYN001	Peripheral Neuropathic Pain	Phase 2 Initiation	2018

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 nine months ended September 30, 2017 and 2016, we recognized research and development expenses of $17.0 million and $11.9 million, respectively, which were net of $3.3 million and $2.5 million, respectively, associated with the Australian research and development tax incentive program. As part of this program, we are eligible to receive a cash refund from the Australian Taxation Office for a percentage of our research and development costs expended by Zynerba Pharmaceuticals Pty Ltd., our Australian subsidiary.

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, investor relations 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 U.S. generally accepted accounting principles, 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 nine months ended September 30, 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 September 30, 2017 and 2016

Research and Development Expenses

Research and development expenses increased by $1.3 million, or 28%, to $5.8 million for the three months ended September 30, 2017 from $4.5 million for the three months ended September 30, 2016. The increase was primarily related to increases in the number and size of our non-clinical studies and clinical trials for ZYN002 and ZYN001 and personnel costs, including stock-based compensation expense.

General and Administrative Expenses

General and administrative expenses increased by $1.3 million, or 87%, to $2.8 million for the three months ended September 30, 2017 from $1.5 million for the three months ended September 30, 2016. The increase was primarily related to increases in intellectual property-related expenses, public company reporting and compliance expenses and personnel costs, including stock-based compensation expense.

Other Income (Expense)

During the three months ended September 30, 2017 and 2016, we recognized $161,930 and $22,747, 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 September 30, 2017 and 2016, we recognized a foreign currency gain of $76,468 and a foreign currency loss of $6,270, 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.

Comparison of the Nine Months Ended September 30, 2017 and 2016

Revenue

Revenue for the nine months ended September 30, 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 $5.1 million, or 43%, to $17.0 million for the nine months ended September 30, 2017 from $11.9 million for the nine months ended September 30, 2016. The increase was primarily related to increases in the number and size of our non-clinical studies and clinical trials for ZYN002 and ZYN001 and personnel costs, including stock-based compensation expense.

General and Administrative Expenses

General and administrative expenses increased by $3.0 million, or 64%, to $7.6 million for the nine months ended September 30, 2017 from $4.6 million for the nine months ended September 30, 2016. The increase was primarily related to increases in expenses associated with the development of commercialization plans for our products, intellectual property-related expenses, public company reporting and compliance expenses and personnel costs, including stock-based compensation expense.

Other Income (Expense)

For the nine months ended September 30, 2017 and 2016, we recognized $0.4 million and $0.1 million, 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 nine months ended September 30, 2017 and 2016, we recognized a foreign currency gain of $361,450 and a foreign currency loss of

$49,668, 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.

Income Tax Benefit

During the nine months ended September 30, 2016, we recognized an income tax benefit of $27,543 resulting from an adjustment to an income tax liability associated with our Australian subsidiary.

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 2017, 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 September 30, 2017, our principal source of liquidity was our cash and cash equivalents, which totaled $66.3 million. Our working capital was $64.5 million as of September 30, 2017.

Management believes that the cash and cash equivalents position as of September 30, 2017 is sufficient to develop five Phase 3-ready programs and initiate at least one pivotal program and fund operations and capital requirements into 2019. Substantial additional financings will be needed to fund our operations and to complete clinical development of and to commercially develop our product candidates. There is no assurance that such financing will be available when needed or on acceptable terms.

Recent Equity Financings

In June 2017, we entered into an Open Market Sales Agreement, or Sales Agreement, with Jefferies LLC, or Jefferies, pursuant to which we may sell, from time to time, up to $50 million of our common stock. From September 28, 2017 through October 26, 2017, we have sold and issued 296,594 shares of common stock in the open market at a weighted average selling price of $10.74 per share, for gross proceeds of $3.2 million. Net proceeds after deducting underwriting and commissions and offering expenses were $3.0 million. None of the proceeds were settled prior to September 30, 2017, and therefore, the cash from the sale of these common shares will be recorded in the fourth quarter. The Sales Agreement replaced our prior Open Market Sales Agreement with Jefferies, dated as of September 1, 2016, under which we sold 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 during 2016.

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 September 30, 2017 or December 31, 2016.

Future Capital Requirements

During the nine months ended September 30, 2017, net cash used in operating activities was $19.1 million, and our accumulated deficit as of September 30, 2017 was $69.9 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 nine months ended September 30, 2017 and 2016.

	Nine Months Ended September 30,	
	2017	2016
Statement of Cash Flows Data:		
Total net cash (used in) provided by:		
Operating activities	$(19,128,694)	$(14,931,479)
Investing activities	(91,070)	(86,726)
Financing activities	54,505,259	5,285,918
Net increase (decrease) in cash and cash equivalents	$ 35,285,495	$ (9,732,287)

Operating Activities

For the nine months ended September 30, 2017, cash used in operating activities was $19.1 million compared to $14.9 million for the nine months ended September 30, 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.

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

Investing Activities

For the nine months ended September 30, 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 nine months ended September 30, 2017 primarily consisted of $54.2 million in proceeds from sales of our shares of common stock under a follow-on public offering, net of related offering costs and $0.4 million in proceeds from the exercise of employee stock options. Cash provided by financing activities for the nine months ended September 30, 2016 represented proceeds from sales of our shares of common stock under our prior Open Market Sales Agreement, 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

We are an “emerging growth company” as defined under the Jumpstart Our Business Startups Act of 2012, or JOBS Act. 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 September 30, 2017, we had cash and cash equivalents of $66.3 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 our foreign currency exchange rate risk is a significant risk; however, if we conduct additional 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 September 30, 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 September 30, 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 nine months ended September 30, 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 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 September 30, 2017, we have used approximately $40.4 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 following exhibits are being filed herewith:

EXHIBIT INDEX

Exhibit No.	Exhibit
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).

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: November 14, 2017

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

Date: November 14, 2017

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

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 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: November 14, 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 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: November 14, 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 September 30, 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: November 14, 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 September 30, 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: November 14, 2017