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

FORM S-8
REGISTRATION STATEMENT
UNDER THE SECURITIES ACT OF 1933

ALLIQUA BIOMEDICAL, INC.

(Exact name of registrant as specified in its charter)

Delaware

(State or other jurisdiction of
incorporation or organization)

58-2349413

(I.R.S. Employer Identification No.)

**1010 Stony Hill Road
Suite 200
Yardley, PA 19067
(215) 702-8550**

(Address, including zip code, and telephone number, including area code, of Registrant's principal executive offices)

2014 Long-Term Incentive Plan
(Full title of the plan)

**David I. Johnson
Chief Executive Officer
Alliqua BioMedical, Inc.
1010 Stony Hill Road
Suite 200
Yardley, PA 19067
(215) 702-8550**

(Name, address, including zip code, and telephone number, including area code, of agent for service)

With a copy to:

**Rick A. Werner, Esq.
Haynes and Boone, LLP
30 Rockefeller Plaza, 26th Floor
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Indicate by check mark whether the registrant is a large accelerated filer, an accelerated filer, a non-accelerated filer, or a smaller reporting company. See the definitions of "large accelerated filer," "accelerated filer" and "smaller reporting company" in Rule 12b-2 of the Exchange Act.

Large Accelerated Filer

Non-Accelerated Filer (Do not check if a smaller reporting company)

Accelerated Filer

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 to Section 7(a)(2)(B) of the Securities Act.

CALCULATION OF REGISTRATION FEE

Title of securities to be registered	Amount to be registered (1)	Proposed maximum offering price per share	Proposed maximum aggregate offering price	Amount of registration fee
Common Stock, \$0.001 par value per share	1,000(2)	\$ 2.09(3)	\$ 2,090	\$ 0.26
Common Stock, \$0.001 par value per share	2,000(2)	\$ 2.13(3)	\$ 4,260	\$ 0.53
Common Stock, \$0.001 par value per share	83,727(2)	\$ 3.50(3)	\$ 293,045	\$ 36.48
Common Stock, \$0.001 par value per share	40,131(2)	\$ 3.70(3)	\$ 148,485	\$ 18.49
Common Stock, \$0.001 par value per share	154,642(4)	\$ 1.87(5)	\$ 289,181	\$ 36.00
Common Stock, \$0.001 par value per share	118,500(6)	\$ 1.87(5)	\$ 221,595	\$ 27.59
Total	400,000		\$ 958,656	\$ 119.35

- (1) Pursuant to Rule 416 under the Securities Act of 1933, as amended, we are also registering an indeterminable number of shares of common stock that may be issued in connection with stock splits, stock dividends, recapitalizations or similar transactions.
- (2) Represents shares of common stock added to the pursuant to the second amendment to the Alliqua BioMedical, Inc. 2014 Long-Term Incentive Plan (the "2014 Plan"), which increased the number of shares of common stock available for issuance under the 2014 Plan, and that are issuable upon the exercise of outstanding stock options awarded under the 2014 Plan.
- (3) Estimated solely for the purpose of calculating the registration fee pursuant to Rule 457(h) under the Securities Act of 1933, as amended, and based upon the price at which such options may be exercised.
- (4) Represents shares of restricted stock issued under the 2014 Plan.
- (5) Estimated solely for the purpose of calculating the registration fee pursuant to Rule 457(c) and (h) under the Securities Act of 1933, as amended, and based upon the average of the high and low sale prices for the registrant's common stock as reported on the NASDAQ Capital Market on December 18, 2017.
- (6) Represents shares of Common Stock added to the 2014 Plan pursuant to second amendment to the 2014 Plan, which increased the number of shares of common stock available for issuance under the 2014 Plan, and that are reserved for issuance pursuant to future awards under the 2014 Plan.

EXPLANATORY NOTE

At the time the Alliqua BioMedical, Inc. 2014 Long-Term Incentive Plan (the “2014 Plan”) was adopted, we reserved a total of 2,000,000 shares of our common stock for issuance pursuant to awards to employees, contractors, and non-employee directors under the 2014 Plan. On May 6, 2015, our stockholders approved the first amendment to the 2014 Plan to increase the number of shares of common stock available for issuance pursuant to awards under the 2014 Plan by an additional 3,500,000 shares, to a total of 5,500,000 shares of common stock. On June 23, 2017, our stockholders approved the second amendment to the 2014 Plan to increase the number of shares of common stock available for issuance pursuant to awards under the 2014 Plan by 4,000,000 shares of common stock, to a total of 9,500,000 shares of common stock. On October 5, 2017, we effected a 1-for-10 reverse stock split of our common stock. When adjusted to give effect to the 1-for-10 reverse stock split the second amendment to the 2014 Plan increased the number of shares of common stock available for issuance pursuant to awards under the 2014 Plan by 400,000 shares, and a total of 950,000 shares of our common stock are reserved under the 2014 Plan.

This Registration Statement on Form S-8 of Alliqua BioMedical, Inc. (“we”, “us”, “our”, the “Company” or “Registrant”) has been prepared in accordance with the requirements of Form S-8 under the Securities Act of 1933, as amended, to register:

- 126,858 shares of our common stock, par value \$0.001 per share, underlying options previously granted under the second amendment to the 2014 Plan;
- 154,642 shares of restricted stock previously granted under the 2014 Plan; and
- 118,500 shares of common stock reserved for issuance under the second amendment to the 2014 Plan.

This Registration Statement also includes a prospectus (which we refer to as the “reoffer prospectus”) prepared in accordance with General Instruction C of Form S-8 and in accordance with the requirements of Part I of Form S-3. The reoffer prospectus may be used for reofferings and resales of certain of the shares of our common stock listed above that may be deemed to be “control securities” and/or “restricted securities” under the Securities Act of 1933, as amended, and the rules and regulations promulgated thereunder. These are shares that were or may be acquired by our officers, directors and affiliates, or that were acquired by our employees or consultants, under an employee benefit plan. Such officers, directors, affiliates, employees and consultants are the selling stockholders identified in the reoffer prospectus.

PART I

INFORMATION REQUIRED IN THE SECTION 10(a) PROSPECTUS

The document(s) containing the information specified in Part I will be sent or given to employees as specified by Rule 428(b)(1) of the Securities Act of 1933, as amended. Such documents are not being filed with the Securities and Exchange Commission either as part of this Registration Statement or as prospectuses or prospectus supplements pursuant to Rule 424 of the Securities Act of 1933, as amended.

REOFFER PROSEPECTUS



Alliqua BioMedical, Inc.

190,976 Shares of Common Stock

This reoffer prospectus relates to shares of common stock of Alliqua BioMedical, Inc. that may be reoffered or resold from time to time by the stockholders identified in this reoffer prospectus and that have been acquired or that may be acquired under our 2014 Long-Term Incentive Plan (the "2014 Plan"). This prospectus covers 150,881 shares of restricted stock that are owned by the selling stockholders and up to 40,095 shares of common stock issuable upon the exercise of currently outstanding options granted under the 2014 Plan.

The selling stockholders may sell shares of common stock from time to time in the principal market on which our common stock is traded at the prevailing market price or in privately negotiated transactions. See "Plan of Distribution" which begins on page 10.

We will not receive any of the proceeds from the sale of common stock by the selling stockholders. However, we will generate proceeds in the event of an exercise of the options by the selling stockholders. We intend to use those proceeds, if any, for general corporate purposes. We will pay the expenses of registering these shares.

Our common stock is listed on the NASDAQ Capital Market under the symbol "ALQA." On December 21, 2017, the last reported sale price of our common stock as reported on the NASDAQ Capital Market was \$1.92 per share.

We may amend or supplement this reoffer prospectus from time to time by filing amendments or supplements as required. You should read the entire prospectus, the information incorporated by reference herein and any amendments or supplements carefully before you make your investment decision.

Investing in our common stock is highly speculative and involves a high degree of risk. You should carefully consider the risks and uncertainties in the section entitled "Risk Factors" beginning on page 3 of this reoffer prospectus before making a decision to purchase our stock.

Neither the Securities and Exchange Commission nor any state securities commission has approved or disapproved of these securities or passed upon the adequacy or accuracy of this prospectus. Any representation to the contrary is a criminal offense.

The date of this reoffer prospectus is December 22, 2017.

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ABOUT THIS PROSPECTUS

You should rely only on the information contained in this prospectus or incorporated by reference in this prospectus and in any applicable prospectus supplement. Neither we nor the selling stockholders have authorized anyone to provide you with different information. We and the selling stockholders take no responsibility for, and can provide no assurance as to the reliability of, any other information that others may give you. The information contained in this prospectus, any applicable prospectus supplement and the documents incorporated by reference herein or therein are accurate only as of the date such information is presented. Our business, financial condition, results of operations and prospects may have changed since that date. You should also read this prospectus together with the additional information described under the headings “Incorporation of Certain Information by Reference” and “Where You Can Find More Information.” This prospectus may be supplemented from time to time to add, update or change information in this prospectus. Any statement contained in this prospectus will be deemed to be modified or superseded for purposes of this prospectus to the extent that a statement contained in such prospectus supplement modifies or supersedes such statement. Any statement so modified will be deemed to constitute a part of this prospectus only as so modified, and any statement so superseded will be deemed not to constitute a part of this prospectus.

The selling stockholders are offering the common stock only in jurisdictions where such issuances are permitted. The distribution of this prospectus and the issuance of the common stock in certain jurisdictions may be restricted by law. Persons outside the United States who come into possession of this prospectus must inform themselves about, and observe any restrictions relating to, the issuance of the common stock and the distribution of this prospectus outside the United States. This prospectus does not constitute, and may not be used in connection with, an offer to sell, or a solicitation of an offer to buy, the common stock offered by this prospectus by any person in any jurisdiction in which it is unlawful for such person to make such an offer or solicitation.

The registration statement containing this prospectus, including the exhibits to the registration statement, provides additional information about us and the securities offered under this prospectus. The registration statement, including the exhibits, can be read on the Securities and Exchange Commission’s website or at the Securities and Exchange Commission’s offices mentioned under the heading “Where You Can Find More Information.”

PROSPECTUS SUMMARY

This summary provides an overview of selected information contained elsewhere or incorporated by reference in this prospectus and does not contain all of the information you should consider before investing in our common stock. You should carefully read the prospectus, the information incorporated by reference and the registration statement of which this prospectus is a part in their entirety before investing in our common stock, including the information discussed under “Risk Factors” in this prospectus and the documents incorporated by reference and our financial statements and notes thereto that are incorporated by reference in this prospectus. As used in this prospectus, unless the context otherwise indicates, the terms “we,” “our,” “us,” or “the Company” refer to Alliqua BioMedical, Inc., and, where appropriate, its consolidated subsidiaries.

Overview

We are a regenerative technologies company that commercializes differentiated regenerative medical products which assist the body in the repair or replacement of soft tissue. Through our sales and distribution network, together with our proprietary products, we believe we offer solutions that allow clinicians to utilize the latest advances in regenerative technologies to bring improved patient outcomes to their practices. Our contract manufacturing business provides custom hydrogels to the OEM market.

Our commercial wound care portfolio currently consists of three product categories: wound bed preparation, human biologics and antimicrobial protection. We currently market MIST® Ultrasound Healing Therapy, which uses painless, noncontact low-frequency ultrasound to promote healing, Biovance® Amniotic Membrane Allograft and Interfyl® Human Connective Tissue Matrix, which are human biologic regenerative technologies. We seek to broaden this product portfolio by identifying, acquiring and integrating technologies and products that enhance our product portfolio while diversifying our customer base and growing our sales footprint. In addition, we maintain our legacy contract manufacturing business, which provides custom hydrogels to the OEM market.

We are a Delaware corporation that was originally formed in 1997 under the name Zeta Corporation. On April 17, 2003, we changed our name to Hepalife Technologies, Inc. and, on December 20, 2010, we changed our name to Alliqua, Inc. On June 6, 2014, pursuant to an agreement and plan of merger between us and our wholly-owned Delaware subsidiary, Alliqua BioMedical, Inc., we merged with and into Alliqua BioMedical, Inc. for the purposes of changing our name to Alliqua BioMedical, Inc. and state of domicile from Florida to Delaware.

Our principal executive offices are located at 1010 Stony Hill Road, Suite 200, Yardley, Pennsylvania 19067, our telephone number is (215) 702-8550, and our website is located at www.alliqua.com. Information accessed through our website is not incorporated into this prospectus and is not a part of this prospectus.

RISK FACTORS

Investing in our common stock involves a high degree of risk. You should carefully consider the risks and uncertainties and all other information contained or incorporated by reference in this prospectus, including the risks and uncertainties discussed under “Risk Factors” in our Annual Report on Form 10-K for the fiscal year ended December 31, 2016, and in our Quarterly Reports on Form 10-Q for the fiscal quarters ended March 31, 2017, June 30, 2017, and September 30, 2017, as updated or superseded by the risks and uncertainties described under similar headings in the other documents that are filed after the date hereof and incorporated by reference into this prospectus. All of these “Risk Factors” are incorporated by reference herein in their entirety. These risks and uncertainties are not the only ones facing us. Additional risks of which we are not presently aware or that we currently believe are immaterial may also harm our business and results of operations. The trading price of our common stock could decline due to the occurrence of any of these risks, and investors could lose all or part of their investment. In assessing these risks, investors should also refer to the information contained or incorporated by reference in our other filings with the Securities and Exchange Commission.

SPECIAL NOTE REGARDING FORWARD-LOOKING STATEMENTS

This prospectus and the information incorporated by reference contain “forward-looking statements,” which include information relating to future events, future financial performance, strategies, expectations, competitive environment and regulation. Words such as “may,” “should,” “could,” “would,” “predicts,” “potential,” “continue,” “expects,” “anticipates,” “future,” “intends,” “plans,” “believes,” “estimates,” and similar expressions, as well as statements in future tense, identify forward-looking statements. Forward-looking statements should not be read as a guarantee of future performance or results and will probably not be accurate indications of when such performance or results will be achieved. Forward-looking statements are based on information we have when those statements are made or our management’s good faith belief as of that time with respect to future events, and are subject to risks and uncertainties that could cause actual performance or results to differ materially from those expressed in or suggested by the forward-looking statements. Important factors that could cause such differences include, but are not limited to:

- our ability to continue as a going concern;
- inadequate capital;
- the uncertainty regarding the adequacy of our liquidity to pursue our complete business objectives;
- our ability to recover the carrying value of some or all of our intangible assets including goodwill;
- our ability to obtain reimbursement from third party payers for our products;
- our ability to achieve and maintain minimum sales requirements under our license agreements;
- our ability to obtain and maintain regulatory approval of our existing products and any future products we may develop;
- our ability to cure or obtain forbearance or waivers for existing covenant defaults under our outstanding indebtedness and to remain in compliance with our debt covenants;
- market acceptance of our existing and future products;
- loss or retirement of key executives;
- our plans to make significant additional outlays of working capital before we expect to generate significant revenues and the uncertainty regarding when we will begin to generate significant revenues, if we are able to do so;
- an unfavorable decision on product reimbursement;
- adverse economic conditions and/or intense competition;
- loss of a key customer or supplier;
- entry of new competitors and products;
- adverse federal, state and local government regulation;
- technological obsolescence of our products;
- technical problems with our research and products;
- risks of mergers and acquisitions including the time and cost of implementing transactions and the potential failure to achieve expected gains, revenue growth or expense savings;

- price increases for supplies and components; and
- the inability to carry out research, development and commercialization plans.

You should review carefully the section entitled “Risk Factors” beginning on page 3 of this prospectus for a discussion of these and other risks that relate to our business and investing in our common stock. The forward-looking statements contained or incorporated by reference in this prospectus are expressly qualified in their entirety by this cautionary statement. We do not undertake any obligation to publicly update any forward-looking statement to reflect events or circumstances after the date on which any such statement is made or to reflect the occurrence of unanticipated events.

USE OF PROCEEDS

We will not receive any proceeds from the sale of common stock by the selling stockholders.

Certain of the shares covered by this prospectus are issuable upon exercise of options to purchase our common stock. As such, if a selling stockholder exercises all or any portion of its options, we will receive the aggregate exercise price paid by such selling stockholder in connection with any such option exercise. We intend to use those proceeds, if any, for general working capital purposes.

SELLING STOCKHOLDERS

This reoffer prospectus relates to the reoffer and resale of shares issued or that may be issued to the selling stockholders listed below, or future selling stockholders, under the 2014 Plan. Each of the transactions by which the selling stockholders acquired the securities covered by this prospectus was exempt under the registration provisions of the Securities Act of 1933, as amended.

The following table sets forth, as of December 20, 2017, the number of shares beneficially owned by each current selling stockholder. The number of shares in the column “Number of Shares Beneficially Owned Prior to the Offering” represents the total number of shares that a selling stockholder currently owns or has the right to acquire within sixty (60) days of December 20, 2017. The number of shares in the column “Shares Which May be Offered” represents all of the shares that a selling stockholder may offer under this reoffer prospectus, and includes shares issuable upon the exercise of options that have not yet vested and are not included in the column “Number of Shares Beneficially Owned Prior to the Offering.” The table and footnotes assume that the selling stockholders will sell all of the shares listed in the column “Shares Which May be Offered.” However, because the selling stockholders may sell all or some of their shares under this reoffer prospectus from time to time, or in another permitted manner, we cannot assure you as to the actual number of shares that will be sold by the selling stockholders or that will be held by the selling stockholders after completion of any sales. We do not know how long the selling stockholders will hold the shares before selling them. Beneficial ownership is determined in accordance with Rule 13d-3 promulgated by the Securities and Exchange Commission under the Securities Exchange Act of 1934, as amended. The selling stockholders have not had a material relationship with us within the past three years other than as set forth in the column “Position” in the table below or as a result of their acquisition of our shares or other securities.

Information concerning the selling stockholders may change from time to time and changed information will be presented in a supplement to this reoffer prospectus if and when necessary and required. If, subsequent to the date of this reoffer prospectus, we grant additional awards to the selling stockholders or to other affiliates under the 2014 Plan, we intend to supplement this reoffer prospectus to reflect such additional awards and the names of such affiliates and the amounts of securities to be reoffered by them.

Name	Position	Number of Shares Beneficially Owned Prior to the Offering	Shares Which May be Offered (1)	Shares Beneficially Owned After Offering	Percentage of Common Stock Beneficially Owned After Offering (2)
David Johnson	President, Chief Executive Officer and Director	230,391(3)	80,000(4)	230,391(5)	4.64%
Brian Posner	Chief Financial Officer	58,490(6)	23,489(7)	45,001(8)	*
Bradford Barton	Chief Operating Officer	76,631(9)	23,818(7)	62,813(10)	1.26%
Pellegrino Pionati	Chief Strategy and Marketing Officer	34,327(11)	23,574(7)	20,753(12)	*
Jerome Zeldis, M.D., Ph.D.	Former Chairman and Director	164,749(13)	4,095(14)	160,654(15)	3.23%
Joseph M. Leone	Director	24,885(16)	9,000(14)	19,152(17)	*
Gary Restani	Director	12,369(18)	9,000(14)	6,636(19)	*
Jeffrey Sklar	Director	19,303(20)	9,000(14)	13,570(21)	*
Mark Wagner	Director	51,157(22)	9,000(14)	45,424(23)	*

* Less than 1%.

- (1) Does not constitute a commitment to sell any or all of the stated number of shares of common stock. The number of shares offered shall be determined from time to time by each selling stockholder at their sole discretion.
- (2) The percentage of shares beneficially owned is based upon 4,986,034 shares of common stock outstanding as of December 20, 2017.
- (3) Includes (i) 79,454 shares of common stock, (ii) 10,000 shares of restricted stock that vest within 60 days of December 20, 2017 (iii) 2,822 shares of our common stock issuable upon exercise of warrants and (iv) 138,115 shares of common stock issuable upon exercise of options that are currently exercisable or exercisable within 60 days of December 20, 2017.
- (4) Comprised of 80,000 shares of unvested restricted stock awarded under the 2014 Plan.
- (5) Includes (i) 79,454 shares of common stock, (ii) 10,000 shares of restricted stock that vest within 60 days of December 20, 2017 (iii) 2,822 shares of our common stock issuable upon exercise of warrants and (iv) 138,115 shares of common stock issuable upon exercise of options that are currently exercisable or exercisable within 60 days of December 20, 2017.
- (6) Includes (i) 10,819 shares of common stock, (ii) 16,823 shares of restricted stock that vest within 60 days of December 20, 2017 and (iii) 30,848 shares of common stock issuable upon exercise of options that are currently exercisable or exercisable within 60 days of December 20, 2017.
- (7) Comprised entirely of restricted stock awarded under the 2014 Plan.
- (8) Includes (i) 10,819 shares of common stock, (ii) 3,334 shares of restricted stock that vest within 60 days of December 20, 2017 and (iii) 30,848 shares of common stock issuable upon exercise of options that are currently exercisable or exercisable within 60 days of December 20, 2017.
- (9) Includes (i) 18,730 shares of common stock, (ii) 17,152 shares of restricted stock that vest within 60 days of December 20, 2017, (iii) 988 shares of common stock issuable upon exercise of warrants and (iv) 39,761 shares of common stock issuable upon exercise of options that are currently exercisable or exercisable within 60 days of December 20, 2017.
- (10) Includes (i) 18,730 shares of common stock, (ii) 3,334 shares of restricted stock that vest within 60 days of December 20, 2017, (iii) 988 shares of common stock issuable upon exercise of warrants and (iv) 39,761 shares of common stock issuable upon exercise of options that are currently exercisable or exercisable within 60 days of December 20, 2017.
- (11) Includes (i) 14,086 shares of common stock, (ii) 13,574 shares of restricted stock that vest within 60 days of December 20, 2017 and (iii) 6,667 shares of common stock issuable upon exercise of options that are currently exercisable or exercisable within 60 days of December 20, 2017.
- (12) Includes (i) 14,086 shares of common stock, and (ii) 6,667 shares of common stock issuable upon exercise of options that are currently exercisable or exercisable within 60 days of December 20, 2017.
- (13) Includes (i) 78,675 shares of common stock, (ii) 17,875 shares of common stock issuable upon exercise of warrants and (iii) 68,199 shares of common stock issuable upon exercise of options that are currently exercisable or exercisable within 60 days of December 20, 2017.
- (14) Comprised entirely of shares of common stock issuable upon exercise of options that are currently exercisable or exercisable within 60 days of December 20, 2017.
- (15) Includes (i) 78,675 shares of common stock, (ii) 17,875 shares of common stock issuable upon exercise of warrants and (iii) 64,104 shares of common stock issuable upon exercise of options that are currently exercisable or exercisable within 60 days of December 20, 2017.
- (16) Includes (i) 4,382 shares of common stock, (ii) 1,190 shares of common stock issuable upon exercise of warrants and (iii) 19,313 shares of common stock issuable upon exercise of options that are currently exercisable or exercisable within 60 days of December 20, 2017.
- (17) Includes (i) 4,382 shares of common stock, (ii) 1,190 shares of common stock issuable upon exercise of warrants and (iii) 13,580 shares of common stock issuable upon exercise of options that are currently exercisable or exercisable within 60 days of December 20, 2017.
- (18) Comprised of 12,369 shares of common stock issuable upon exercise of options that are currently exercisable or exercisable within 60 days of December 20, 2017.
- (19) Comprised of 6,636 shares of common stock issuable upon exercise of options that are currently exercisable or exercisable within 60 days of December 20, 2017.

- (20) Includes (i) 2,436 shares of our common stock owned directly by Mr. Sklar, (ii) 69 shares of our common stock held in a custodial account for a child, of which Mr. Sklar disclaims beneficial ownership, (iii) 15,655 shares of our common stock issuable to Mr. Sklar upon the exercise of stock options that are currently exercisable or exercisable within 60 days of December 20, 2017, and (iv) 1,143 shares of common stock issuable upon the exercise of warrants held by Mr. Sklar.
- (21) Includes (i) 2,436 shares of our common stock owned directly by Mr. Sklar, (ii) 69 shares of our common stock held in a custodial account for a child, of which Mr. Sklar disclaims beneficial ownership, (iii) 9,922 shares of our common stock issuable to Mr. Sklar upon the exercise of stock options that are currently exercisable or exercisable within 60 days of December 20, 2017, and (iv) 1,143 shares of common stock issuable upon the exercise of warrants held by Mr. Sklar.
- (22) Includes (i) 39,430 shares of common stock and (ii) 11,727 shares of common stock issuable upon exercise of options that are currently exercisable or exercisable within 60 days of December 20, 2017.
- (23) Includes (i) 39,430 shares of common stock and (ii) 5,994 shares of common stock issuable upon exercise of options that are currently exercisable or exercisable within 60 days of December 20, 2017.

PLAN OF DISTRIBUTION

Each selling stockholder of the securities and any of its transferees, distributees, pledgees or donees or their successors may, from time to time, sell any or all of their securities covered hereby on the NASDAQ Capital Market or any other stock exchange, market or trading facility on which the securities are traded or in private transactions. These sales may be at fixed or negotiated prices. A selling stockholder may use any one or more of the following methods when selling securities:

- ordinary brokerage transactions and transactions in which the broker-dealer solicits purchasers;
- block trades in which the broker-dealer will attempt to sell the shares as agent but may position and resell a portion of the block as principal to facilitate the transaction;
- purchases by a broker-dealer as principal and resale by the broker-dealer for its account;
- an exchange distribution in accordance with the rules of the applicable exchange;
- privately negotiated transactions;
- settlement of short sales entered into after the effective date of the registration statement of which this prospectus is a part;
- in transactions through broker-dealers that agree with the selling stockholders to sell a specified number of such securities at a stipulated price per security;
- through the writing or settlement of options or other hedging transactions, whether through an options exchange or otherwise;
- a combination of any of the foregoing methods of sale; or
- any other method permitted pursuant to applicable law.

If the selling stockholder effects such transactions by selling shares of our common stock to or through underwriters, broker-dealers or agents, such underwriters, broker-dealers or agents may receive commissions in the form of discounts, concessions or commissions from the selling stockholder or commissions from purchasers of our common stock for whom they may act as agent or to whom they may sell as principal (which discounts, concessions or commissions as to particular underwriters, broker-dealers or agents may be in excess of those customary in the types of transactions involved).

From time to time, one or more of the selling stockholders may distribute, devise, gift, pledge, hypothecate or grant a security interest in some or all of the shares of common stock owned by them. Any such distributees, devisees or donees will be deemed to be selling stockholders. Any such pledgees, secured parties or persons to whom the securities have been hypothecated will, upon foreclosure in the event of default, be deemed to be selling stockholders.

The selling stockholder and any broker-dealer participating in the distribution of our common stock may be deemed to be “underwriters” within the meaning of the Securities Act of 1933, as amended, and any commission paid, or any discounts or concessions allowed to, any such broker-dealer may be deemed to be underwriting commissions or discounts under the Securities Act of 1933, as amended. At the time a particular offering of the securities is made, a prospectus supplement, if required, will be distributed which will set forth the aggregate amount of securities being offered and the terms of the offering, including the name or names of any broker-dealers or agents, any discounts, commissions and other terms constituting compensation from the selling stockholder and any discounts, commissions or concessions allowed, reallocated or paid to broker-dealers.

The selling stockholder may choose not to sell any or may choose to sell less than all of our common stock registered pursuant to the registration statement, of which this reoffer prospectus forms a part.

The selling stockholder and any other person participating in such distribution will be subject to applicable provisions of the Securities Exchange Act of 1934, as amended, and the rules and regulations thereunder, including, without limitation, Regulation M, which may limit the timing of purchases and sales of any of the shares of common stock by the selling stockholder and any other participating person. Regulation M may also restrict the ability of any person engaged in the distribution of the shares of common stock to engage in market-making activities with respect to the shares of common stock. All of the foregoing may affect the marketability of the common stock and the ability of any person or entity to engage in market-making activities with respect to the shares of our common stock.

We will pay the expenses of the registration of our common stock sold by the selling stockholders, including, without limitation, Securities and Exchange Commission filings fees, compliance with state securities or “blue sky” laws; provided, however, that the selling stockholder will pay all underwriting discounts and selling commissions, if any. As and when we are required to update this reoffer prospectus, we may incur additional expenses.

Once sold under the registration statement, of which this reoffer prospectus forms a part, our common stock will be freely tradable in the hands of persons other than our affiliates. We have notified the selling stockholders of the need to deliver a copy of this reoffer prospectus in connection with any sale of the shares.

In order to comply with certain state securities laws, if applicable, the shares may be sold in such jurisdictions only through registered or licensed brokers or dealers. In certain states, the shares may not be sold unless the shares have been registered or qualified for sale in such state or an exemption from regulation or qualification is available and is complied with. Sales of shares must also be made by the selling stockholders in compliance with all other applicable state securities laws and regulations.

In addition to any shares sold hereunder, selling stockholders may, at the same time, sell any shares of common stock owned by them in compliance with all of the requirements of Rule 144, regardless of whether such shares are covered by this reoffer prospectus.

LEGAL MATTERS

Haynes and Boone, LLP, New York, New York, has passed upon the validity of the shares of our common stock offered by the selling stockholders under this prospectus.

EXPERTS

The financial statements incorporated in this prospectus by reference to our Annual Report on Form 10-K for the year ended December 31, 2016, have been audited by Marcum, LLP, independent registered public accounting firm, and have been so incorporated in reliance upon the report of such firm given upon their authority as experts in auditing and accounting.

INCORPORATION OF CERTAIN INFORMATION BY REFERENCE

The Securities and Exchange Commission allows us to “incorporate by reference” the information we have filed with it, which means that we can disclose important information to you by referring you to those documents. The information we incorporate by reference is an important part of this prospectus, and later information that we file with the Securities and Exchange Commission will automatically update and supersede this information. We incorporate by reference the documents listed below and any future documents we file with the Securities and Exchange Commission pursuant to Sections 13(a), 13(c), 14 or 15(d) of the Securities Exchange Act of 1934, as amended, subsequent to the date of this prospectus and prior to the termination of the offering (excluding, in either case, information furnished pursuant to Items 2.02 and 7.01 of Form 8-K):

- (1) Our Annual Report on Form 10-K for the fiscal year ended December 31, 2016, filed with the Securities and Exchange Commission on March 14, 2017;
- (2) Our Quarterly Report on Form 10-Q for the fiscal quarter ended March 31, 2017, filed with the Securities and Exchange Commission on May 9, 2017;
- (3) Our Quarterly Report on Form 10-Q for the fiscal quarter ended June 30, 2017, filed with the Securities and Exchange Commission on August 10, 2017;
- (4) Our Quarterly Report on Form 10-Q for the fiscal quarter ended September 30, 2017, filed with the Securities and Exchange Commission on November 9, 2017;

- (5) Our Current Reports on Form 8-K, filed with Securities and Exchange Commission on each of January 30, 2017, February 28, 2017, March 13, 2017, March 15, 2017, March 23, 2017, March 28, 2017, March 31, 2017, April 4, 2017, April 5, 2017, April 12, 2017 (two reports), April 27, 2017, May 1, 2017, June 5, 2017, June 19, 2017, June 23, 2017, August 10, 2017 (excluding information furnished pursuant to Item 2.02), September 1, 2017, September 5, 2017, September 13, 2017, October 5, 2017, November 9, 2017 (excluding information furnished pursuant to Item 2.02), November 24, 2017 and December 8, 2017; and
- (6) The description of our common stock contained in Form 8-A filed with the Securities and Exchange Commission on January 27, 2014, and any amendment or report filed for the purpose of updating such description.

WHERE YOU CAN FIND MORE INFORMATION

We are subject to the informational requirements of the Securities Exchange Act of 1934, as amended, and in accordance therewith file annual, quarterly and current reports, proxy statements and other information with the Securities and Exchange Commission. Such reports, proxy statements and other information can be read and copied at the Securities and Exchange Commission's public reference facilities at 100 F Street, N.E., Washington, D.C. 20549, at prescribed rates. Please call the Securities and Exchange Commission at 1-800-732-0330 for further information on the operation of the public reference facilities. In addition, the Securities and Exchange Commission maintains a website that contains reports, proxy and information statements and other information regarding registrants that file electronically with the Securities and Exchange Commission. The address of the Securities and Exchange Commission's website is www.sec.gov.

We make available free of charge on or through our website at www.alliqua.com, our Annual Reports on Form 10-K, Quarterly Reports on Form 10-Q, Current Reports on Form 8-K and amendments to those reports filed or furnished pursuant to Section 13(a) or 15(d) of the Securities Exchange Act of 1934, as amended, as soon as reasonably practicable after we electronically file such material with or otherwise furnish it to the Securities and Exchange Commission. Information on our website is not incorporated by reference in this prospectus and is not a part of this prospectus.

We will provide without charge to each person to whom a copy of this prospectus is delivered, upon written or oral request, a copy of any or all of the information that has been incorporated by reference in this prospectus but not delivered with this prospectus (other than an exhibit to these filings, unless we have specifically incorporated that exhibit by reference in this prospectus). Any such request should be addressed to us at: 1010 Stony Hill Road, Suite 200, Yardley, Pennsylvania, 19067, Attention: Brian Posner, Chief Financial Officer or by phone at (215) 702-8550.



Alliqua BioMedical, Inc.

190,976 Shares of Common Stock

PROSPECTUS

PART II

INFORMATION REQUIRED IN THE REGISTRATION STATEMENT

Item 3. Incorporation of Documents by Reference

The Securities and Exchange Commission allows us to “incorporate by reference” the information we have filed with it, which means that we can disclose important information to you by referring you to those documents. The information we incorporate by reference is an important part of this registration statement, and later information that we file with the Securities and Exchange Commission will automatically update and supersede this information. We incorporate by reference the documents listed below and any future documents we file with the Securities and Exchange Commission pursuant to Sections 13(a), 13(c), 14 or 15(d) of the Securities Exchange Act of 1934, as amended, after the date of the initial filing of this registration statement and prior to the filing of a post-effective amendment which indicates that all securities offered have been sold or which deregisters all securities then remaining unsold (excluding, in either case, information furnished pursuant to Items 2.02 and 7.01 of Form 8-K):

- (1) Our Annual Report on Form 10-K for the fiscal year ended December 31, 2016, filed with the Securities and Exchange Commission on March 14, 2017;
- (2) Our Quarterly Report on Form 10-Q for the fiscal quarter ended March 31, 2017, filed with the Securities and Exchange Commission on May 9, 2017;
- (3) Our Quarterly Report on Form 10-Q for the fiscal quarter ended June 30, 2017, filed with the Securities and Exchange Commission on August 10, 2017;
- (4) Our Quarterly Report on Form 10-Q for the fiscal quarter ended September 30, 2017, filed with the Securities and Exchange Commission on November 9, 2017;
- (5) Our Current Reports on Form 8-K, filed with Securities and Exchange Commission on each of January 30, 2017, February 28, 2017, March 13, 2017, March 15, 2017, March 23, 2017, March 28, 2017, March 31, 2017, April 4, 2017, April 5, 2017, April 12, 2017 (two reports), April 27, 2017, May 1, 2017, June 5, 2017, June 19, 2017, June 23, 2017, August 10, 2017 (excluding information furnished pursuant to Item 2.02), September 1, 2017, September 5, 2017, September 13, 2017, October 5, 2017, November 9, 2017 (excluding information furnished pursuant to Item 2.02), and November 24, 2017; and
- (6) The description of our common stock contained in Form 8-A filed with the Securities and Exchange Commission on January 27, 2014, and any amendment or report filed for the purpose of updating such description.

Item 4. Description of Securities.

Not applicable.

Item 5. Interests of Named Experts and Counsel.

Not applicable.

Item 6. Indemnification of Directors and Officers.

Section 145 of the General Corporation Law of the State of Delaware provides, in general, that a corporation incorporated under the laws of the State of Delaware, as we are, may indemnify any person who was or is a party or is threatened to be made a party to any threatened, pending or completed action, suit or proceeding (other than a derivative action by or in the right of the corporation) by reason of the fact that such person is or was a director, officer, employee or agent of the corporation, or is or was serving at the request of the corporation as a director, officer, employee or agent of another enterprise, against expenses (including attorneys' fees), judgments, fines and amounts paid in settlement actually and reasonably incurred by such person in connection with such action, suit or proceeding if such person acted in good faith and in a manner such person reasonably believed to be in or not opposed to the best interests of the corporation and, with respect to any criminal action or proceeding, had no reasonable cause to believe such person's conduct was unlawful. In the case of a derivative action, a Delaware corporation may indemnify any such person against expenses (including attorneys' fees) actually and reasonably incurred by such person in connection with the defense or settlement of such action or suit if such person acted in good faith and in a manner such person reasonably believed to be in or not opposed to the best interests of the corporation, except that no indemnification will be made in respect of any claim, issue or matter as to which such person will have been adjudged to be liable to the corporation unless and only to the extent that the Court of Chancery of the State of Delaware or any other court in which such action was brought determines such person is fairly and reasonably entitled to indemnity for such expenses.

Our certificate of incorporation, as amended, and bylaws provide that we will indemnify our directors, officers, employees and agents to the extent and in the manner permitted by the provisions of the General Corporation Law of the State of Delaware, as amended from time to time, subject to any permissible expansion or limitation of such indemnification, as may be set forth in any stockholders' or directors' resolution or by contract. Any repeal or modification of these provisions approved by our stockholders will be prospective only and will not adversely affect any limitation on the liability of any of our directors or officers existing as of the time of such repeal or modification.

We are also permitted to apply for, and currently maintain, insurance on behalf of any director, officer, employee or other agent for liability arising out of his actions, whether or not the General Corporation Law of the State of Delaware would permit indemnification.

Item 7. Exemption from Registration Claimed.

The restricted securities that may be reoffered or resold by the selling stockholders pursuant to the reoffer prospectus included herein were stock awards granted under the 2014 Plan and were not registered under the Securities Act of 1933, as amended, or the securities laws of any state, in reliance on the exemption from registration under the Securities Act of 1933, as amended, provided by Section 4(a)(2), as transactions by an issuer not involving a public offering.

Item 8. Exhibits.

Exhibit No.	Description
<u>4.1</u>	<u>Certificate of Incorporation of Alliqua BioMedical, Inc. (incorporated by reference to Exhibit 3.1 to the Current Report on Form 8-K filed with the Securities and Exchange Commission on June 11, 2014).</u>
<u>4.2</u>	<u>Bylaws of Alliqua BioMedical, Inc. (incorporated by reference to Exhibit 3.2 to the Current Report on Form 8-K filed with the Securities and Exchange Commission on June 11, 2014).</u>
<u>4.3</u>	<u>Certificate of Amendment to Certificate of Incorporation of Alliqua BioMedical, Inc. (incorporated by reference to Exhibit 3.3 to the Current Report on Form 8-K filed with the Securities and Exchange Commission on June 11, 2014).</u>
<u>4.4</u>	<u>Certificate of Amendment to Certificate of Incorporation of Alliqua BioMedical, Inc. (incorporated by reference to Exhibit 3.1 to the Current Report on Form 8-K filed on May 6, 2016).</u>
<u>4.5</u>	<u>Certificate of Amendment of Certificate of Incorporation of Alliqua BioMedical, Inc. dated October 5, 2017 (incorporated by reference in Exhibit 3.1 to the Current Report on Form 8-K filed on October 5, 2017).</u>
<u>4.6</u>	<u>Form of Common Stock Certificate (incorporated by reference to Exhibit 4.1 to the Registration Statement on Form S-3 filed with the Securities and Exchange Commission on August 5, 2014).</u>

<u>5.1*</u>	<u>Opinion of Haynes and Boone, LLP.</u>
<u>23.1*</u>	<u>Consent of Marcum LLP.</u>
<u>23.2*</u>	<u>Consent of Haynes and Boone, LLP (included in Exhibit 5.1)</u>
<u>24.1</u>	<u>Power of Attorney (included in signature page)</u>
<u>99.1</u>	<u>Alliqua BioMedical, Inc. 2014 Long-Term Incentive Plan (incorporated by reference to Exhibit 10.1 to the Current Report on Form 8-K filed with the Securities and Exchange Commission on June 11, 2014).</u>
<u>99.2</u>	<u>First Amendment to the Alliqua BioMedical, Inc. 2014 Long-Term Incentive Plan (incorporated by reference to Exhibit 10.1 to the Current Report on Form 8-K filed with the Securities and Exchange Commission on May 6, 2015).</u>
<u>99.3</u>	<u>Second Amendment to the Alliqua BioMedical, Inc. 2014 Long-Term Incentive Plan (incorporated by reference to Exhibit 10.1 to the Current Report on Form 8-K filed with the Securities and Exchange Commission on June 23, 2017).</u>
<u>99.4</u>	<u>Form of Incentive Stock Option Agreement under the 2014 Long-Term Incentive Plan (incorporated by reference to Exhibit 99.3 to Registration Statement on Form S-8 filed with the Securities and Exchange Commission on August 6, 2015).</u>
<u>99.5</u>	<u>Form of Nonqualified Stock Option Agreement under the 2014 Long-Term Incentive Plan (incorporated by reference to Exhibit 99.4 to Registration Statement on Form S-8 filed with the Securities and Exchange Commission on August 6, 2015).</u>
<u>99.6</u>	<u>Form of Restricted Stock Award Agreement under the 2014 Long-Term Incentive Plan (incorporated by reference to Exhibit 99.5 to Registration Statement on Form S-8 filed with the Securities and Exchange Commission on August 6, 2015).</u>
<u>99.7</u>	<u>Form of Restricted Stock Unit Agreement under the 2014 Long-Term Incentive Plan (incorporated by reference to Exhibit 99.6 to Registration Statement on Form S-8 filed with the Securities and Exchange Commission on August 6, 2015).</u>

* Filed herewith.

Item 9. Undertakings.

(a) The undersigned registrant hereby undertakes:

- (1) To file, during any period in which offers or sales are being made, a post-effective amendment to this registration statement:
 - (i) To include any prospectus required by Section 10(a)(3) of the Securities Act of 1933;
 - (ii) To reflect in the prospectus any facts or events arising after the effective date of the registration statement (or the most recent post-effective amendment thereof) which, individually or in the aggregate, represent a fundamental change in the information set forth in the registration statement. Notwithstanding the foregoing, any increase or decrease in volume of securities offered (if the total dollar value of securities offered would not exceed that which was registered) and any deviation from the low or high end of the estimated maximum offering range may be reflected in the form of prospectus filed with the Commission pursuant to Rule 424(b) if, in the aggregate, the changes in volume and price represent no more than a 20% change in the maximum aggregate offering price set forth in the "Calculation of Registration Fee" table in the effective registration statement;

- (iii) To include any material information with respect to the plan of distribution not previously disclosed in the registration statement or any material change to such information in the registration statement;

provided, however, that paragraphs (a)(1)(i) and (a)(1)(ii) of this section do not apply if the information required to be included in a post-effective amendment by those paragraphs is contained in reports filed with or furnished to the Commission by the registrant pursuant to section 13 or section 15(d) of the Securities Exchange Act of 1934 (15 U.S.C. 78m or 78o(d)) that are incorporated by reference in the registration statement.

- (2) That, for the purpose of determining any liability under the Securities Act of 1933, each such post-effective amendment shall be deemed to be a new registration statement relating to the securities offered therein, and the offering of such securities at that time shall be deemed to be the initial bona fide offering thereof.
- (3) To remove from registration by means of a post-effective amendment any of the securities being registered which remain unsold at the termination of the offering.

(b) The undersigned registrant hereby undertakes that, for purposes of determining any liability under the Securities Act of 1933, each filing of the registrant's annual report pursuant to section 13(a) or section 15(d) of the Securities Exchange Act of 1934 (and, where applicable, each filing of an employee benefit plan's annual report pursuant to section 15(d) of the Securities Exchange Act of 1934) that is incorporated by reference in the registration statement shall be deemed to be a new registration statement relating to the securities offered therein, and the offering of such securities at that time shall be deemed to be the initial bona fide offering thereof.

(c) Insofar as indemnification for liabilities arising under the Securities Act of 1933 may be permitted to directors, officers and controlling persons of the registrant pursuant to the foregoing provisions, or otherwise, the registrant has been advised that in the opinion of the Securities and Exchange Commission such indemnification is against public policy as expressed in the Act and is, therefore, unenforceable. In the event that a claim for indemnification against such liabilities (other than the payment by the registrant of expenses incurred or paid by a director, officer or controlling person of the registrant in the successful defense of any action, suit or proceeding) is asserted by such director, officer or controlling person in connection with the securities being registered, the registrant will, unless in the opinion of its counsel the matter has been settled by controlling precedent, submit to a court of appropriate jurisdiction the question whether such indemnification by it is against public policy as expressed in the Act and will be governed by the final adjudication of such issue.

SIGNATURES

Pursuant to the requirements of the Securities Act of 1933, the registrant certifies that it has reasonable grounds to believe that it meets all of the requirements for filing on Form S-8 and has duly caused this registration statement to be signed on its behalf by the undersigned, thereunto duly authorized, in the City of Yardley, State of Pennsylvania on December 22, 2017.

ALLIQUA BIOMEDICAL, INC.

By: /s/ David I. Johnson
Name: David I. Johnson
Title: Chief Executive Officer

Power of Attorney

Each person whose signature appears below hereby appoints each of David I. Johnson and Brian M. Posner, severally, acting alone and without the other, his or her true and lawful attorney-in-fact, with full power of substitution, and with the authority to execute in the name of each such person, any and all amendments (including without limitation, post-effective amendments) to this registration statement on Form S-8, to sign any and all additional registration statements relating to the same offering of securities as this registration statement, including any amendment to this registration statement for the purpose of registering additional shares in accordance with General Instruction E to Form S-8, and to file such registration statements with the Securities and Exchange Commission, together with any exhibits thereto and other documents therewith, necessary or advisable to enable the registrant to comply with the Securities Act of 1933, and any rules, regulations and requirements of the Securities and Exchange Commission in respect thereof, which amendments may make such other changes in the registration statement as the aforesaid attorney-in-fact executing the same deems appropriate.

Pursuant to the requirements of the Securities Act of 1933, this registration statement has been signed by the following persons in the capacities and on the dates indicated.

<u>Signature</u>	<u>Title</u>	<u>Date</u>
<u>/s/ David I. Johnson</u> David I. Johnson	President, Chief Executive Officer and Director (principal executive officer)	December 22, 2017
<u>/s/ Brian M. Posner</u> Brian M. Posner	Chief Financial Officer, Secretary and Treasurer (principal financial and accounting officer)	December 22, 2017
<u>/s/ Joseph Leone</u> Joseph Leone	Director	December 22, 2017
<u>/s/ Jeffrey Sklar</u> Jeffrey Sklar	Director	December 22, 2017
<u>/s/ Gary Restani</u> Gary Restani	Director	December 22, 2017
<u>/s/ Mark Wagner</u> Mark Wagner	Director	December 22, 2017

December 22, 2017

Alliqua BioMedical, Inc.
1010 Stony Hill Road
Suite 200
Yardley, PA 19067

Re: Registration Statement on Form S-8 of 400,000 Shares of Common Stock of Alliqua BioMedical, Inc.

Ladies and Gentlemen:

We have acted as counsel to Alliqua Biomedical, Inc., a Delaware corporation (the “*Company*”), in connection with the filing with the Securities and Exchange Commission (the “*Commission*”) under the Securities Act of 1933, as amended (the “*Act*”) of a registration statement on Form S-8 (the “*Registration Statement*”) by the Company relating to the registration of up to 400,000 shares (the “*Shares*”) of the Company’s common stock, \$0.0001 par value per share (the “*Common Stock*”), comprised of (i) up to 154,642 shares of restricted stock, (ii) up to 126,858 shares for issuance upon the exercise of stock options and (iii) up to 118,500 shares reserved for issuance pursuant to future awards under the Alliqua BioMedical, Inc. 2014 Long-Term Incentive Plan (the “*Plan*”).

This opinion is being furnished in accordance with the requirements of Item 601(b)(5) of Regulation S-K under the Act.

For purposes of the opinions we express below, we have examined originals, or copies certified or otherwise identified, of (i) the Certificate of Incorporation (the “*Certificate of Incorporation*”) and the Bylaws (the “*Bylaws*”) of the Company, each as amended and/or restated as of the date hereof; (ii) certain resolutions of the Board of Directors of the Company related to the filing of the Registration Statement, the authorization and issuance of the Shares and related matters; (iii) the Registration Statement and all exhibits thereto; (iv) the Plan; (v) the specimen Common Stock certificate; (vi) a certificate executed by an officer of the Company, dated as of the date hereof; and (vii) such other records, documents and instruments as we deemed relevant and necessary for purposes of the opinion stated herein.

As to questions of fact material to the opinions expressed below, we have, without independent verification of their accuracy, relied to the extent we deem reasonably appropriate upon the representations and warranties of the Company contained in such documents, records, certificates, instruments or representations furnished or made available to us by the Company.

In making the foregoing examination, we have assumed (i) the genuineness of all signatures, (ii) the authenticity of all documents submitted to us as originals, (iii) the conformity to original documents of all documents submitted to us as certified or photostatic copies, (iv) that all agreements or instruments we have examined are the valid, binding and enforceable obligations of the parties thereto, and (v) that all factual information on which we have relied was accurate and complete.

We have not considered, and express no opinion herein as to, the laws of any state or jurisdiction other than the Delaware General Corporation Law, as currently in effect (the “*DGCL*”).

We have also assumed that, at the time of the issuance of the Shares: (i) the Registration Statement and any amendments thereto (including post-effective amendments) will have become effective and will remain effective, (ii) no stop order of the Commission preventing or suspending the use of the prospectus described in the Registration Statement will have been issued, (iii) the prospectus described in the Registration Statement and any required prospectus supplement will have been delivered to the recipient of the Shares as required in accordance with applicable law, (iv) the resolutions of the Board of Directors of the Company referred to above will not have been modified or rescinded, (v) the Company will receive consideration for the issuance of the Shares required by the Plan and that is at least equal to the par value of the Common Stock, (vi) all requirements of the DGCL, the Certificate of Incorporation and the Bylaws will be complied with when the Shares are issued, (vii) sufficient shares of Common Stock will be authorized for issuance under the Certificate of Incorporation of the Company that have not otherwise been issued or reserved for issuance and (viii) neither the issuance nor sale of the Shares will result in a violation of any agreement or instrument then binding upon the Company or any order of any court or governmental body having jurisdiction over the Company.

Based on the foregoing, and subject to the qualifications, assumptions and limitations stated herein, we are of the opinion that upon the issuance of the Shares in accordance with the terms of the Plan and the instruments executed pursuant to such Plan, the Shares will be validly issued, fully paid and non-assessable.

We hereby consent to the filing of this opinion as Exhibit 5.1 to the Registration Statement and to all references to us in the Registration Statement. In giving this consent, we are not admitting that we are within the category of persons whose consent is required under Section 7 of the Act or the rules and regulations of the Commission thereunder.

Very truly yours,

/s/ Haynes and Boone, LLP

Haynes and Boone, LLP

INDEPENDENT REGISTERED PUBLIC ACCOUNTING FIRM'S CONSENT

We consent to the incorporation by reference in this Registration Statement of Alliqua BioMedical, Inc. on Form S-8 of our report dated March 14, 2017, which includes an explanatory paragraph as to the Company's ability to continue as a going concern, with respect to our audits of the consolidated financial statements of Alliqua BioMedical, Inc. and Subsidiaries as of December 31, 2016 and 2015 and for the years then ended, appearing in the Annual Report on Form 10-K of Alliqua BioMedical, Inc. for the year ended December 31, 2016. We also consent to the reference to our firm under the heading "Experts" in the Prospectus, which is part of this Registration Statement.

/s/ Marcum llp

Marcum llp
New York, NY
December 22, 2017
