

Member FINRA/SIPC

Toll Free: 561-391-5555 ♦ www.DawsonJames.com ♦ 1 North Federal Highway - Suite 500 ♦ Boca Raton, FL 33432

OpGen (Nasdaq/OPGN)

BUY **Q3 results positive; AMR gene panel set to launch**
OpGen is a precision medicine company using molecular diagnostics and bioinformatics to help combat infectious disease

November 10, 2017

Robert M. Wasserman
 Senior Research Analyst
 561-208-2905

rwasserman@dawsonjames.com

Investment Highlights

1) **OpGen reported several positive trends for their Q3/2017 quarter**, including an increase in FISH diagnostic test revenues over the second quarter and on par with the same period last year, and a 29% reduction in total operating expenses year-over-year. Overall, revenues came in at \$745,000 in Q3/17, compared to \$760,000 in Q3/2016, with a net loss of \$3.3 million or (\$0.07) per share versus a net loss of \$4.8 million or (\$0.23) per share in the prior year period. Operating cash burn was approximately \$3 million in the third quarter, and at the end of the period OpGen held \$4.9 million in cash on hand.

2) **Looking ahead, the Company is focusing on new business development, specifically its Acuitas Rapid Tests and Lighthouse database system.** In Q1/2018 OpGen plans to release its new AMR Gene Panel u5.47 for complicated urinary tract infections (cUTI) for research and investigational use. In addition, the Company intends to begin analytical validation studies and more detailed FDA-oriented clinical trials on the gene panel to allow for first regulatory submissions product late this year and next year, to be able to fully launch the product as early as late 2018 or early 2019. OpGen is also advancing its cloud-based Acuitas Lighthouse Knowledgebase program for predicting antibiotic susceptibility, having recently completed the design of the product to be used alongside the Company's Acuitas rapid tests on partner Thermo Fisher's (TMO, Not Rated) new QuantStudio 5 real-time PCR system. Finally, OpGen's recently announced \$860,000 contract from the CDC for Smartphone-based clinical decision support solutions for infection control is set to be begun and completed over the next 12-18 months, after which time the Company may expand the program from the initial pilot phase to a broader deployment.

Current Price **\$0.27**
Price Target **\$2.00**

Estimates	F2015A	F2016A	F2017E
Revenues(\$000s)	\$3,158	\$4,026	\$3,080
1Q March	472	1,077	772 A
2Q June	375	1,183	703 A
3Q September	981	760	745 A
4Q December	1,330	1,007	860 E
EPS (diluted)	(\$2.20)	(\$1.10)	(\$0.39)
1Q March	(5.61)	(0.36)	(0.19) A
2Q June	(0.84)	(0.37)	(0.15) A
3Q September	(0.38)	(0.23)	(0.07) A
4Q December	(0.38)	(0.21)	(0.05) E

EBITDA/Share	(\$1.68)	(\$1.01)	(\$0.35)
EVEBITDA (x)	N/A	N/A	N/A

Stock Data	
52-Week Range	\$0.21-\$3.10
Shares Outstanding (mil.)	54.9
Market Capitalization (mil.)	\$14.8
Enterprise Value (mil.)	\$11.1
Debt to Capital (9/17)	22.6%
Book Value/Share (9/17)	\$0.07
Price/Book	3.9 x
Average Trading Volume (3-month) (million)	1.8
Insider Ownership	16.3%
Institutional Ownership	28.2%
Short interest (Millions)	2.7
Dividend / Yield	\$0.00/0.0%



Price target and ratings changes over the past 3 yrs:
 Initiated - June 19, 2017 - Buy - Price Target \$2.00

3) Our forecasts for Q3/2017 for OpGen include total revenues of \$860,000, including a small increase in product sales vis-à-vis Q4/2016, and a smaller net loss of \$2.9 million or (\$0.05) per share, as compared to a net loss of \$4.8 million or (\$0.21) per share for the same period one year ago. Positive contributors to expected fourth quarter results include a continuation of the bounce-back in FISH diagnostic test revenues and lower operating expenses stemming from an ongoing effort to trim costs. For 2018E, we estimate that product sales revenues will begin an upward climb, boosted by initial sales of new AMR gene panel tests, and even with slight growth in operating expenses relating to new product R&D and marketing we are estimating that net losses will drop next year. Despite cost saving measures over the past several years, OpGen retains an experienced core sales organization, a strong partner in Thermo Fisher, and solid relationships with its existing clients, which will help in launching the new AMR gene panel tests.

Conclusion

OpGen continues to make progress in transitioning its diagnostic product line to its new Acuitas Rapid Tests and Acuitas Lighthouse Knowledgebase offerings, which are targeting the large, expanding multi-drug resistant organism market. While this transitioning is happening, however, OPGN shares continue to suffer, and the stock is currently trading at significant valuation discounts to its seven-stock peer diagnostic products group. With several new partnerships signed recently, and more to possibly come in the future to go along with new regulatory approvals and product launches, we believe OPGN shares are poised for a bounce-back as positive news flow continues into the future, and thus we are maintaining our BUY rating on OPGN shares and 12-18 month price target of \$2.00 per share. (For complete stock valuation methodology, please see our Initiation Report dated 6/19/2017)

Risk Factors

In addition to normal economic and market risk factors that impact most equities and the common risks shared by OpGen with other companies in the industry, we believe an investment in OPGN involves the following risks:

- **Reliance on key management** – At present, OPGN relies on several key members of its management team who either founded the Company or have been in key executive positions for an extended period of time. Should one or more of these key executives leave the Company, OPGN could find it difficult to replace their long-standing knowledge of operations and industry expertise.
- **Reliance on partnerships** – To date, OPGN has signed a number of marketing and development partnerships and joint ventures for its diagnostic tests and information services. Thus, in the future certain factors related to product marketing and/or new product development may be determined by third parties and out of the control of Company management.
- **Limited stock liquidity** – Trading volume in OPGN stock is comparatively light and these shares have a relatively limited history of trading compared with other healthcare stocks. As such, news regarding OPGN, its target market, partners and/or competitors could lead to significant volatility in the stock price.
- **Competitive Markets** – The Company and its partners compete in its target diagnostic markets with a number of companies, many of which are considerably larger than the Company. There can be no assurance that the Company and its partners will be able to successfully compete and launch new products into these competitive markets in the future.
- **FDA and regulatory risks** – OPGN and its partners are subject to regulatory review for ongoing diagnostic tests and information products, principally the US Food and Drug Administration's approval and laboratory review processes. In addition, the quality assurance and manufacture of the Company's

diagnostic products are subject to ongoing oversight and regulation, and any negative correspondence from the FDA or other regulatory agencies could have an adverse effect on the ongoing operations of the Company.

- **Lack of historic profitability** - OPGN has not achieved operating profitability since its founding, and according to our forecasts may not be expected to do so in the near future. Although the Company maintains adequate cash reserves at the present time, there can be no assurance the Company will not need to raise additional working capital in the future should operating losses continue.
- **Need to defend patents and other intellectual property** – OPGN currently holds approximately over 170 US and International patents on its products and information services, some of which expire in the near future. The Company may be required to defend its patents in the US and overseas in the future, and there can be no assurance these defenses will be successful.

Source: Dawson James Securities, Inc. estimates; Company documents

Important Disclosures:

Price Chart:



Price target and ratings changes over the past 3 years:

Initiated – Buy - June 19, 2017 – Price Target \$2.00

Dawson James Securities, Inc. (the “Firm”) is a member of the Financial Industry Regulatory Authority (“FINRA”) and the Securities Investor Protection Corporation (“SIPC”).

The Firm does not make a market in the securities of the subject company (s). The Firm has NOT engaged in investment banking relationships with OPGN in the prior twelve months, as a manager or co-manager of a public offering and has NOT received compensation resulting from those relationships. The Firm may seek compensation for investment banking services in the future from the subject company(s). The Firm has received other compensation from the subject company(s) in the last 12 months for services unrelated to managing or co-managing of a public offering.

Neither the research analyst(s) whose name appears on this report nor any member of his (their) household is an officer, director or advisory board member of these companies. The Firm and/or its directors and employees may own securities of the company(s) in this report and may increase or decrease holdings in the future. As of October 31, 2017, the Firm as a whole did not beneficially own 1% or more of any class of common equity securities of the subject company (s) of this report. The Firm, its officers, directors, analysts or employees may effect transactions in and have long or short positions in the securities (or options or warrants related to those securities) of the company(s) subject to this report. The Firm may effect transactions as principal or agent in those securities.

Analysts receive no direct compensation in connection with the Firm's investment banking business. All Firm employees, including the analyst(s) responsible for preparing this report, may be eligible to receive non-product or service specific monetary bonus compensation that is based upon various factors, including total revenues of the Firm and its affiliates as well as a portion of the proceeds from a broad pool of investment vehicles consisting of components of the compensation generated by investment banking activities, including but not limited to shares of stock and/or warrants, which may or may not include the securities referenced in this report.

Although the statements in this report have been obtained from and are based upon recognized statistical services, issuer reports or communications, or other sources that the Firm believes to be reliable, we cannot guarantee their accuracy. All opinions and estimates included in this report constitute the analyst's judgment as of the date of this report and are subject to change without notice.

Information about valuation methods and risks can be found in the “STOCK VALUATION” and “RISK FACTORS” sections of this report.

The securities of the company discussed in this report may be unsuitable for investors depending on their specific investment objectives and financial position. This report is offered for informational purposes only, and does not constitute an offer or solicitation to buy or sell any securities discussed herein in any jurisdiction where such would be prohibited. Additional information is available upon request.

Ratings Definitions:

- 1) **Buy:** the analyst believes the price of the stock will appreciate and produce a total return of at least 20% over the next 12-18 months;
- 2) **Neutral:** the analyst believes the price of the stock is fairly valued for the next 12-18 months;
- 3) **Sell:** the analyst believes the price of the stock will decline by at least 20% over the next 12-18 months and should be sold.

The following chart reflects the range of current research report ratings for all companies followed by the analysts of the Firm. The chart also reflects the research report ratings relating to those companies for which the Firm has performed investment banking services.

Ratings Distribution	Company Coverage		Investment Banking	
	# of Companies	% of Total	# of Companies	% of Totals
Market Outperform (Buy)	13	87%	2	15%
Market Perform (Neutral)	2	0%	0	0%
Market Underperform (Sell)	0	0%	0	0%
Total	15	100%	2	13%

Analyst Certification:

The analyst(s) whose name appears on this research report certifies that 1) all of the views expressed in this report accurately reflect his (their) personal views about any and all of the subject securities or issuers discussed; and 2) no part of the research analyst's compensation was, is, or will be directly or indirectly related to the specific recommendations or views expressed by the research analyst in this research report; and 3) all Dawson James employees, including the analyst(s) responsible for preparing this research report, may be eligible to receive non-product or service specific monetary bonus compensation that is based upon various factors, including total revenues of Dawson James and its affiliates as well as a portion of the proceeds from a broad pool of investment vehicles consisting of components of the compensation generated by investment banking activities, including but not limited to shares of stock and/or warrants, which may or may not include the securities referenced in this report.