

Medgenics, Inc. (MDGN)

Overweight

Acquires Phase II Ready CNS Drug to Broaden Orphan Pipeline; Reiterate OW

CONCLUSION

Today Medgenics acquired neuroFix for NFC-1, a non-stimulant small-molecule neuromodulator of the metabotropic glutamate receptor (mGluR). The acquisition is the first target to come out of the UPenn CHoP alliance and signals a broadening of the company's Precision Medicine focus. Medgenics plans to develop NFC-1 in the orphan indication 22q11.2 Deletion Syndrome, as well as mGluR+ ADHD. Medgenics will file an IND in 4Q:15 for a Phase I/II study in 22q11.2 patients with data in mid-2016, and intends to initiate a Phase II/III trial in mGluR+ ADHD patients with top-line data in 2H:16. Medgenics paid \$2 million cash upfront, bringing estimated cash to \$20 million. We reiterate our Overweight rating and \$15 price target.

- Acquires neuroFix.** NFC-1 is the first candidate to be identified from Medgenics' CHoP genetics discovery alliance. NFC-1 is an oral, non-stimulating small molecule modulator of mGluR. Research at CHoP's Center for Applied Genomics (CAG) identified mutations in the mGluR network in ~20% of ADHD patients and 90% of 22q11.2 deletion patients, an orphan indication with more severe disease manifestation including neurocognition. Medgenics will pay only \$2 million upfront and owe milestones and single-digit royalties. Importantly, this acquisition represents a broadening of Medgenics' precision medicine focus and we expect additional discoveries to come out of the CHoP alliance.
- NFC-1 Development Path.** NFC-1 previously failed in vascular dementia; however, the drug was dosed in >1,000 patients showing a clean safety profile and twice-daily (BID) dosing. neuroFix ran a Phase Ib trial in 30 ADHD children demonstrating dose and duration-dependent symptom improvement with data to be presented at the American Academy of Child and Adolescent Psychiatry (AACAP) meeting in October. The cohort included two 22.q11.2 patients (one deletion, one duplication) that saw marked symptom improvement. Medgenics will file an IND in 4Q:15 for a Phase I/II dose ranging study in 22q11.2 patients with data in mid-2016. The company will also initiate a Phase II/III trial in mGluR+ ADHD patients with top-line data in 2H:16. We expect Medgenics to develop a companion diagnostic to target ADHD patients.
- TARGET Platform Still Important.** The NFC-1 opportunity is an add-on to Medgenics' TARGET ex vivo gene therapy platform. Medgenics is running Phase II trials of TARGET-EPO in peritoneal dialysis, the first of several orphan ESRD populations. MDGN has selected Glucagon-like peptide-2 (GLP-2) as a 2nd development candidate for short bowel syndrome, where Gattex is highly efficacious but creates unwanted toxicity due to short half-life. MDGN plans to enter the clinic in Israel this year.

RISKS TO ACHIEVEMENT OF PRICE TARGET

TARGET is novel technology. Products may fail in the clinic or to gain approval. Medgenics may not sign partnerships and are likely to require additional capital.

COMPANY DESCRIPTION

Medgenics is developing TARGET technology to treat orphan diseases.

YEAR	REVENUE (US\$ m)						EARNINGS PER SHARE (US\$)					
	Mar	Jun	Sep	Dec	FY	FY RM	Mar	Jun	Sep	Dec	FY	FY P/E
2014A	0.0	1.2	0.7	0.3	2.2	81.0x	(0.28)	(0.21)	(0.16)	(0.30)	(0.96)	NM
2015E	0.0A	1.4A	0.8	0.3	2.5	71.3x	(0.36)A	(0.24)A	(0.33)	(0.36)	(1.29)	NM
2016E	0.0	1.5	0.8	0.3	2.5	71.3x	(0.37)	(0.34)	(0.38)	(0.43)	(1.51)	NM

Piper Jaffray does and seeks to do business with companies covered in its research reports. As a result, investors should be aware that the firm may have a conflict of interest that could affect the objectivity of this report. Investors should consider this report as only a single factor in making their investment decisions. This report should be read in conjunction with important disclosure information, including an attestation under Regulation Analyst certification, found on pages 4 - 6 of this report or at the following site: <http://www.piperjaffray.com/researchdisclosures>.

PRICE: US\$7.10  
TARGET: US\$15.00

Proj. EV of \$467M less mid'16E net debt + warrants

Edward A. Tenthoff

Sr Research Analyst, Piper Jaffray & Co.  
212 284-9403, edward.a.tenthoff@pjc.com

Benjamin J. Adler, Ph.D.

Research Analyst, Piper Jaffray & Co.  
212 284-9329, benjamin.j.adler@pjc.com

Sarah R. Weber

Research Analyst, Piper Jaffray & Co.  
212 284-9321, sarah.r.weber@pjc.com

Changes	Previous	Current
Rating	—	Overweight
Price Tgt	—	US\$15.00
FY15E Rev (mil)	—	US\$2.5
FY16E Rev (mil)	—	US\$2.5
FY15E EPS	—	US\$(1.29)
FY16E EPS	—	US\$(1.51)

52-Week High / Low US\$9.63 / US\$3.68  
Shares Out (mil) 25.1

Diluted shares out as of 2Q:15

Market Cap. (mil)	US\$178.2
Avg Daily Vol (000)	205
Book Value/Share	US\$0.84
Net Cash Per Share	US\$0.80
2Q:15 cash less \$2M neuroFix upfront	

Debt to Total Capital	0.0%
Div (ann)	US\$0.00
Fiscal Year End	Dec

Price Performance - 1 Year



Source: Bloomberg

## INVESTMENT RECOMMENDATION

We reiterate our Overweight rating and \$15 price target based on a projected enterprise value of \$467 million, up from \$382 million, as we roll forward our discount period to mid'16. Today we are adding \$100 million for NFC-1, which should begin Phase II studies in 22q11.2 Deletion Syndrome and ADHD patients soon.

We now value MDGN-201 in various ESRD populations including hyporesponsive ESRD patients, peritoneal dialysis, CKD transplant candidates, MDS and Beta thalassemia at \$367 million, down slightly from \$383 million, with the same 60% discount rate now through mid-'16E.

From this we now subtract out mid'16E net debt of \$16 million including today's \$2 million upfront for neuroFix. Previously we added YE:15E cash of \$1 million. Today we also add \$28 million in cash from the exercise of 4.96 million warrants at an average exercise price of \$5.62. (Source: Form 10Q as of June 30, 2015) Including these warrants, we now divide our projected market cap of \$479 million by 30.96 million diluted shares to support our \$15 price target.

**Medgenics**  
**Quarterly Earnings Estimates**  
(\$ in thousands except per share)

8/10/2015

	<u>1QA</u>	<u>2QA</u>	<u>3QA</u>	<u>4QA</u>	<u>2014A</u>	<u>1QA</u>	<u>2QA</u>	<u>3QE</u>	<u>4QE</u>	<u>2015E</u>	<u>1QE</u>	<u>2QE</u>	<u>3QE</u>	<u>4QE</u>	<u>2016E</u>
<b>Revenues:</b>															
Participation by Office of Chief Scientist	\$0	\$1,182	\$716	\$339	\$2,237	\$0	\$1,430	\$750	\$300	\$2,480	\$0	\$1,500	\$750	\$250	\$2,500
Product Sales	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<b>Total Revenues</b>	<b>\$0</b>	<b>\$1,182</b>	<b>\$716</b>	<b>\$339</b>	<b>\$2,237</b>	<b>\$0</b>	<b>\$1,430</b>	<b>\$750</b>	<b>\$300</b>	<b>\$2,480</b>	<b>\$0</b>	<b>\$1,500</b>	<b>\$750</b>	<b>\$250</b>	<b>\$2,500</b>
<b>Operating Expenses:</b>															
Research and Development	2,142	1,955	2,281	4,112	10,490	3,901	4,458	5,000	5,500	18,859	5,500	6,000	6,500	7,000	25,000
General and Administrative	3,093	2,864	2,305	2,424	10,686	3,947	3,889	4,000	4,000	15,836	4,000	4,250	4,250	4,500	17,000
<b>Total Operating Expenses</b>	<b>\$5,235</b>	<b>\$4,819</b>	<b>\$4,586</b>	<b>\$6,536</b>	<b>\$21,176</b>	<b>\$7,848</b>	<b>\$8,347</b>	<b>\$9,000</b>	<b>\$9,500</b>	<b>\$34,695</b>	<b>\$9,500</b>	<b>\$10,250</b>	<b>\$10,750</b>	<b>\$11,500</b>	<b>\$42,000</b>
<b>Operating Income/(Loss)</b>	<b>(\$5,235)</b>	<b>(\$3,637)</b>	<b>(\$3,870)</b>	<b>(\$6,197)</b>	<b>(\$18,939)</b>	<b>(\$7,848)</b>	<b>(\$6,917)</b>	<b>(\$8,250)</b>	<b>(\$9,200)</b>	<b>(\$32,215)</b>	<b>(\$9,500)</b>	<b>(\$8,750)</b>	<b>(\$10,000)</b>	<b>(\$11,250)</b>	<b>(\$39,500)</b>
<b>Operating Margin</b>	<b>NM</b>	<b>NM</b>	<b>NM</b>	<b>NM</b>	<b>NM</b>	<b>NM</b>	<b>NM</b>	<b>NM</b>	<b>NM</b>	<b>NM</b>	<b>NM</b>	<b>NM</b>	<b>NM</b>	<b>NM</b>	<b>NM</b>
Financial Expenses	(120)	(217)	(64)	333	(68)	(1,078)	(8)	0	0	(1,086)	0	0	0	0	0
Financial Incomes	3	15	896	(328)	586	5	843	10	5	863	0	(5)	(10)	(15)	(30)
Foreign currency exchange (loss) gain	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<b>PreTax Income/(Loss)</b>	<b>(\$5,352)</b>	<b>(\$3,839)</b>	<b>(\$3,038)</b>	<b>(\$6,192)</b>	<b>(\$18,421)</b>	<b>(\$8,921)</b>	<b>(\$6,082)</b>	<b>(\$8,240)</b>	<b>(\$9,195)</b>	<b>(\$32,438)</b>	<b>(\$9,500)</b>	<b>(\$8,755)</b>	<b>(\$10,010)</b>	<b>(\$11,265)</b>	<b>(\$39,530)</b>
<b>PreTex Margin</b>	<b>NM</b>	<b>NM</b>	<b>NM</b>	<b>NM</b>	<b>NM</b>	<b>NM</b>	<b>NM</b>	<b>NM</b>	<b>NM</b>	<b>NM</b>	<b>NM</b>	<b>NM</b>	<b>NM</b>	<b>NM</b>	<b>NM</b>
Income Tax Benefit (Expense)	(5)	(1)	(2)	(4)	(12)	(1)	(4)	0	0	(5)	0	0	0	0	0
<b>Tax Rate</b>	<b>NM</b>	<b>NM</b>	<b>NM</b>	<b>0.0%</b>	<b>-0.1%</b>	<b>0.0%</b>	<b>0.0%</b>	<b>0.0%</b>	<b>0.0%</b>	<b>0.0%</b>	<b>0.0%</b>	<b>0.0%</b>	<b>0.0%</b>	<b>0.0%</b>	<b>0.0%</b>
<b>Net Income/(Loss)</b>	<b>(\$5,357)</b>	<b>(\$3,840)</b>	<b>(\$3,040)</b>	<b>(\$6,196)</b>	<b>(\$18,433)</b>	<b>(\$8,922)</b>	<b>(\$6,086)</b>	<b>(\$8,240)</b>	<b>(\$9,195)</b>	<b>(\$32,443)</b>	<b>(\$9,500)</b>	<b>(\$8,755)</b>	<b>(\$10,010)</b>	<b>(\$11,265)</b>	<b>(\$39,530)</b>
<b>Net Margin</b>	<b>NM</b>	<b>NM</b>	<b>NM</b>	<b>NM</b>	<b>NM</b>	<b>NM</b>	<b>NM</b>	<b>NM</b>	<b>NM</b>	<b>NM</b>	<b>NM</b>	<b>NM</b>	<b>NM</b>	<b>NM</b>	<b>NM</b>
<b>Net Income/(Loss) per Share (Basic)</b>	<b>(\$0.28)</b>	<b>(\$0.21)</b>	<b>(\$0.16)</b>	<b>(\$0.30)</b>	<b>(\$0.96)</b>	<b>(\$0.36)</b>	<b>(\$0.24)</b>	<b>(\$0.33)</b>	<b>(\$0.36)</b>	<b>(\$1.29)</b>	<b>(\$0.37)</b>	<b>(\$0.34)</b>	<b>(\$0.38)</b>	<b>(\$0.43)</b>	<b>(\$1.51)</b>
Basic Shares Outstanding	18,872	18,716	18,818	20,821	19,247	24,844	24,907	25,250	25,500	25,125	25,750	26,000	26,250	26,500	26,125

Source: Company reports and Piper Jaffray estimates

Current disclosure information for this company can be found at <http://www.piperjaffray.com/researchdisclosures>.

**IMPORTANT RESEARCH DISCLOSURES**



Notes: The boxes on the Rating and Price Target History chart above indicate the date of the Research Note, the rating, and the price target. Each box represents a date on which an analyst made a change to a rating or price target, except for the first box, which may only represent the first Note written during the past three years.

Legend:

- I: Initiating Coverage
- R: Resuming Coverage
- T: Transferring Coverage
- D: Discontinuing Coverage
- S: Suspending Coverage
- OW: Overweight
- N: Neutral
- UW: Underweight
- NA: Not Available
- UR: Under Review

Distribution of Ratings/IB Services Piper Jaffray				
Rating	Count	Percent	IB Serv./Past 12 Mos.	
			Count	Percent
<b>BUY [OW]</b>	433	60.81	106	24.48
<b>HOLD [N]</b>	262	36.80	11	4.20
<b>SELL [UW]</b>	17	2.39	0	0.00

Note: Distribution of Ratings/IB Services shows the number of companies currently in each rating category from which Piper Jaffray and its affiliates received compensation for investment banking services within the past 12 months. FINRA rules require disclosure of which ratings most closely correspond with "buy," "hold," and "sell" recommendations. Piper Jaffray ratings are not the equivalent of buy, hold or sell, but instead represent recommended relative weightings. Nevertheless, Overweight corresponds most closely with buy, Neutral with hold and Underweight with sell. See Stock Rating definitions below.

**Analyst Certification — Edward A. Tenthoff, Sr Research Analyst**  
**— Benjamin J. Adler, Ph.D., Research Analyst**  
**— Sarah R. Weber, Research Analyst**

The views expressed in this report accurately reflect my personal views about the subject company and the subject security. In addition, no part of my compensation was, is, or will be directly or indirectly related to the specific recommendations or views contained in this report.

## Research Disclosures

Piper Jaffray was making a market in the securities of Medgenics, Inc. at the time this research report was published. Piper Jaffray will buy and sell Medgenics, Inc. securities on a principal basis.

Piper Jaffray has received compensation for investment banking services from or has had a client relationship with Medgenics, Inc. within the past 12 months.

Within the past 12 months Piper Jaffray was a managing underwriter of a public offering of, or dealer manager of a tender offer for, the securities of Medgenics, Inc. or the securities of an affiliate.

Within the past 3 years Piper Jaffray participated in a public offering of, or acted as a dealer manager for, Medgenics, Inc. securities.

**Affiliate disclosures:** This report has been prepared by Piper Jaffray & Co. and/or its affiliate Piper Jaffray Ltd., both of which are subsidiaries of Piper Jaffray Companies (collectively Piper Jaffray). Piper Jaffray & Co. is regulated by FINRA, NYSE and the United States Securities and Exchange Commission, and its headquarters are located at 800 Nicollet Mall, Minneapolis, MN 55402. Piper Jaffray Ltd. is authorized and regulated by the Financial Conduct Authority, and is located at 88 Wood Street, 13th Floor, London EC2V 7RS. Disclosures in this section and in the Other Important Information section referencing Piper Jaffray include all affiliated entities unless otherwise specified.

Piper Jaffray research analysts receive compensation that is based, in part, on overall firm revenues, which include investment banking revenues.

## Rating Definitions

**Stock Ratings:** Piper Jaffray ratings are indicators of expected total return (price appreciation plus dividend) within the next 12 months. At times analysts may specify a different investment horizon or may include additional investment time horizons for specific stocks. Stock performance is measured relative to the group of stocks covered by each analyst. Lists of the stocks covered by each are available at [www.piperjaffray.com/researchdisclosures](http://www.piperjaffray.com/researchdisclosures). Stock ratings and/or stock coverage may be suspended from time to time in the event that there is no active analyst opinion or analyst coverage, but the opinion or coverage is expected to resume. Research reports and ratings should not be relied upon as individual investment advice. As always, an investor's decision to buy or sell a security must depend on individual circumstances, including existing holdings, time horizons and risk tolerance. Piper Jaffray sales and trading personnel may provide written or oral commentary, trade ideas, or other information about a particular stock to clients or internal trading desks reflecting different opinions than those expressed by the research analyst. In addition, Piper Jaffray offers technical research products that are based on different methodologies, may contradict the opinions contained in fundamental research reports, and could impact the price of the subject security. Recommendations based on technical analysis are intended for the professional trader, while fundamental opinions are typically suited for the longer-term institutional investor.

- **Overweight (OW):** Anticipated to outperform relative to the median of the group of stocks covered by the analyst.
- **Neutral (N):** Anticipated to perform in line relative to the median of the group of stocks covered by the analyst.
- **Underweight (UW):** Anticipated to underperform relative to the median of the group of stocks covered by the analyst.

**Other Important Information**

The material regarding the subject company is based on data obtained from sources we deem to be reliable; it is not guaranteed as to accuracy and does not purport to be complete. This report is solely for informational purposes and is not intended to be used as the primary basis of investment decisions. Piper Jaffray has not assessed the suitability of the subject company for any person. Because of individual client requirements, it is not, and it should not be construed as, advice designed to meet the particular investment needs of any investor. This report is not an offer or the solicitation of an offer to sell or buy any security. Unless otherwise noted, the price of a security mentioned in this report is the market closing price as of the end of the prior business day. Piper Jaffray does not maintain a predetermined schedule for publication of research and will not necessarily update this report. Piper Jaffray policy generally prohibits research analysts from sending draft research reports to subject companies; however, it should be presumed that the fundamental equity analyst(s) who authored this report has had discussions with the subject company to ensure factual accuracy prior to publication, and has had assistance from the company in conducting diligence, including visits to company sites and meetings with company management and other representatives.

**Notice to customers:** This material is not directed to, or intended for distribution to or use by, any person or entity if Piper Jaffray is prohibited or restricted by any legislation or regulation in any jurisdiction from making it available to such person or entity. Customers in any of the jurisdictions where Piper Jaffray and its affiliates do business who wish to effect a transaction in the securities discussed in this report should contact their local Piper Jaffray representative. **Europe:** This material is for the use of intended recipients only and only for distribution to professional and institutional investors, i.e. persons who are authorised persons or exempted persons within the meaning of the Financial Services and Markets Act 2000 of the United Kingdom, or persons who have been categorised by Piper Jaffray Ltd. as professional clients under the rules of the Financial Conduct Authority. **United States:** This report is distributed in the United States by Piper Jaffray & Co., member SIPC, FINRA and NYSE, Inc., which accepts responsibility for its contents. The securities described in this report may not have been registered under the U.S. Securities Act of 1933 and, in such case, may not be offered or sold in the United States or to U.S. persons unless they have been so registered, or an exemption from the registration requirements is available.

This report is produced for the use of Piper Jaffray customers and may not be reproduced, re-distributed or passed to any other person or published in whole or in part for any purpose without the prior consent of Piper Jaffray & Co. Additional information is available upon request.

Copyright 2015 Piper Jaffray. All rights reserved.