

# Trevena, Inc. (TRVN)

Update from Management Meetings

## MARKET DATA

Price	\$5.96
52-Week Range:	\$4.07 - \$9.95
Shares Out. (M):	26.2
Market Cap (\$M):	\$156.2
Average Daily Vol. (000):	47.0
Cash (M):	\$82
Cash/Share:	\$3.11
Enterprise Value (M):	\$76

Source: Thomson Reuters and JMP Securities LLC

FY DEC	2013A	2014E	2015E
Revenue (\$M) 1Q	--	\$0.0A	--
2Q	--	\$0.0A	--
3Q	--	\$0.0	--
4Q	--	\$0.0	--
<b>FY</b>	<b>\$0.1</b>	<b>\$0.0</b>	<b>\$0.0</b>
EPS 1Q	--	(\$0.59)A	--
2Q	--	(\$0.44)A	--
3Q	--	(\$0.49)	--
4Q	--	(\$0.51)	--
<b>FY</b>	<b>(\$29.71)</b>	<b>(\$2.02)</b>	<b>(\$2.01)</b>
P/E	NM	NM	NM

Source: Company reports and JMP Securities LLC

## STOCK PRICE PERFORMANCE



**MARKET OUTPERFORM** | Price: \$5.96 | Target Price: \$18.00

## INVESTMENT HIGHLIGHTS

**Investor meetings highlight multiple upcoming catalysts; reiterate our Market Outperform rating and \$18 price target on Trevena, Inc.** We hosted meetings with Trevena management last week and the primary areas of investor focus were progress in ongoing Phase 2b trials for lead programs TRV130 and TRV027, and the company's novel biased-ligand platform. In the near term, we continue to expect positive results from the Phase 2b bunionectomy trial for TRV130 at the end of 2014 or in early 2015. Also last week, the company participated in a New York Academy of Sciences Symposium and presented further evidence that its proprietary platform technology can continue to generate clinically differentiated drug candidates. While Trevena has remained largely off the radar for most investors since its IPO in January 2014, we see multiple catalysts in 2015 which can further highlight the potential of its lead development candidates as well as validate the biased-ligand platform as a long-term drug discovery engine. Our \$18 price target is derived through a sum-of-the-parts analysis for TRV130 and TRV027.

### Near-term focus on Phase 2b results for TRV130 in the hospital pain setting.

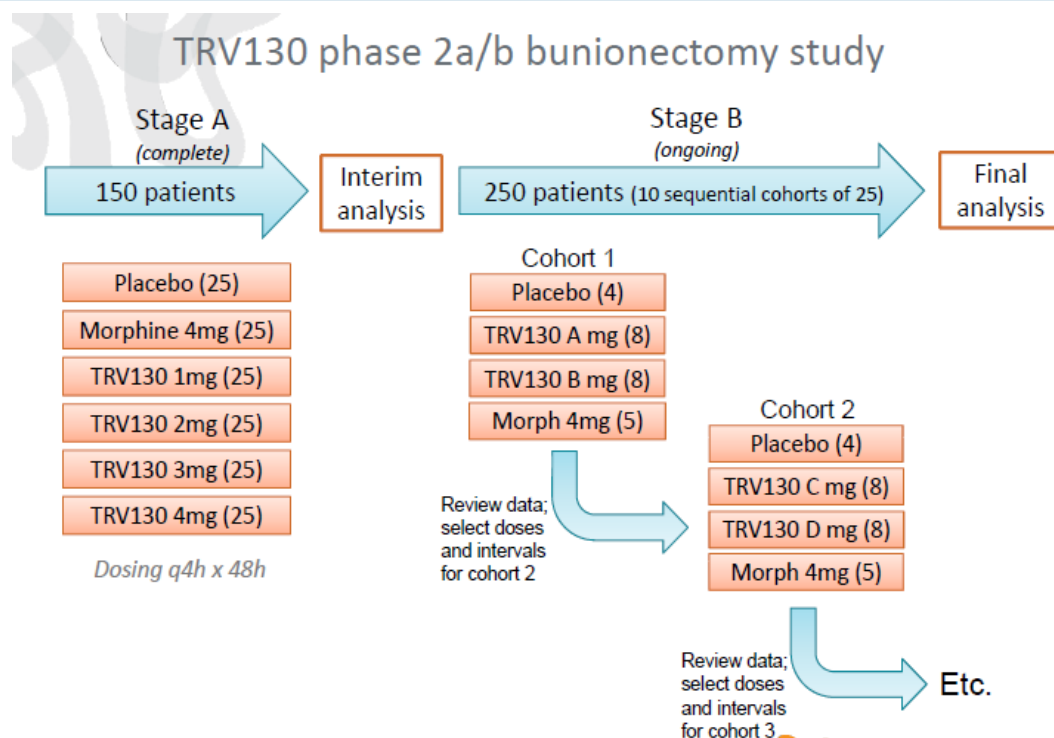
TRV130 is a G protein biased ligand for the  $\mu$ -opioid receptor. The drug candidate is being developed for the treatment of pain in the hospital and outpatient procedural settings and Trevena is currently conducting an adaptive design Phase 2a/b trial in patients following bunionectomy (Figure 1). We believe, based on the scientific rationale of the G protein biased ligand and results from prior clinical and pre-clinical studies, TRV130 has the potential to show better efficacy than morphine, with less of the associated side effects such as GI adverse effects and respiratory depression. Results from this trial are expected in late 2014 or early 2015, with the timeline range dependent on the number of cohorts that are determined to be necessary to identify the optimal dose/dose regimen. The company also remains on track to initiate a Phase 2 trial in a soft tissue surgical setting in 4Q14.

### Enrollment continuing as expected with Phase 2b BLAST-AHF trial in heart failure.

Trevena's second clinical development candidate is TRV027, a peptide  $\beta$ -arrestin biased ligand that targets the angiotensin II type 1 receptor (AT1R), a key mediator of the rennin angiotensin system (RAS) and a validated therapeutic target for heart failure. Results from pre-clinical studies and a Phase 2a trial support the potential for TRV027 to leverage the improvement in cardiac function conferred by targeting AT1R while limiting or avoiding adverse effect including increases in blood pressure and fluid retention. We continue to expect results from this trial in 2H15.

**NYAS presentation raises company public profile.** Trevena participated in a symposium at the NYAS entitled “Elucidating GPCR Functional Selectivity”, giving a presentation titled “First Clinical Evidence That Biased Ligands Improve GPCR Therapeutic Pharmacology”. This presentation detailed the background on the company’s development of biased ligands and the therapeutic implications of functional selectivity as well as an overview of the TRV130 and TRV027 programs. Management stressed the unmet medical need in acute pain and acute heart failure, with the key takeaway being that the functional selectivity inherent in both of its product candidates’ mechanism of action may allow for more efficacious treatments with cleaner safety profiles. In our view, such appearances enhance awareness of Trevena’s scientific background, including the Nobel Prize-winning research of Dr. Robert Lefkowitz at the Duke University Medical Center.

**FIGURE 1. TRV130 Phase 2a/b Study in Acute Pain**



Source: Company reports

## Company Description

Trevena is a clinical-stage biopharmaceutical company based in King of Prussia, PA, focused on the discovery and development of small molecule and peptide G-protein coupled receptor (GPCR) biased ligands. The company was established in 2007 with the aim of translating groundbreaking academic research on GPCR signaling into a new generation of medicines. The company has two programs in clinical development: TRV027, currently in Phase 2 clinical testing for the treatment of acute heart failure, and TRV130, currently completing Phase 2 testing for the treatment of post-operative pain. In addition, Trevena has built an early stage portfolio of drug discovery programs currently in lead optimization, including TRV734, currently in preclinical testing for oral treatment of acute and chronic pain.

In January 2014, Trevena completed its initial public offering, raising net proceeds of approximately \$60MM through the sale of 9.25 million shares of common stock at a price of \$7 per share. The proceeds from the IPO are intended to fund the development of TRV027, TRV130, and TRV734, as well as additional preclinical programs and for general working capital and corporate purposes.

## Investment Risks

**Clinical risk.** Trevena may not be successful in the full development and launch of its product candidates. There may be efficacy or safety issues related to product candidates undergoing clinical trials that would preclude continued development.

**Regulatory risk.** The FDA and/or other ex-U.S. regulatory agencies could reject any of the company's, or its partners', future regulatory filings or require additional studies prior to granting approval.

**Industry risk.** Given the competitive landscape in the biotechnology space, another company may come out with a more efficacious, less expensive product that could take significant market share away from Trevena's products, challenging the company's chances for success.

**Balance sheet risk.** The company has a history of losses and has not yet established a track record of consistent profitability. While we project that the company will not need to raise additional capital to maintain profitability, it may be necessary to do so to fund the business model.

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JMP Securities was manager or co-manager of a public offering of securities for Trevena, Inc. (TRVN) in the past 12 months, and received compensation for doing so.

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Market Outperform (MO): JMP Securities expects the stock price to outperform relevant market indices over the next 12 months.

Market Perform (MP): JMP Securities expects the stock price to perform in line with relevant market indices over the next 12 months.

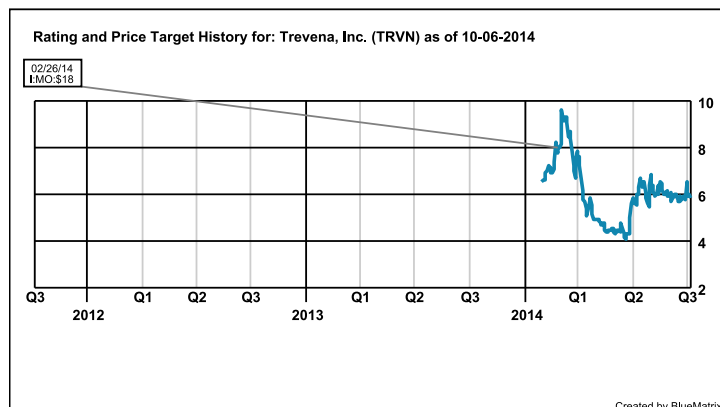
Market Underperform (MU): JMP Securities expects the stock price to underperform relevant market indices over the next 12 months.

### JMP Securities Research Ratings and Investment Banking Services: (as of October 7, 2014)

JMP Rating	Regulatory Equivalent	# Co's Under Coverage	% of Total	Regulatory Equivalent	# Co's Under Coverage	% of Total	# Co's Receiving IB Services in Past 12 Months	% of Co's With This Rating
MARKET OUTPERFORM	Buy	272	60.18%	Buy	272	60.18%	97	35.66%
MARKET PERFORM	Hold	140	30.97%	Hold	140	30.97%	17	12.14%
MARKET UNDERPERFORM	Sell	3	0.66%	Sell	3	0.66%	0	0%
COVERAGE IN TRANSITION		36	7.96%		36	7.96%	0	0%
TOTAL:		452	100%		452	100%	115	25.44%

### Stock Price Chart of Rating and Target Price Changes:

Note: First annotation denotes initiation of coverage or 3 years, whichever is shorter. If no target price is listed, then the target price is N/A. In accordance with NASD Rule 2711, the chart(s) below reflect(s) price range and any changes to the rating or price target as of the end of the most recent calendar quarter. The action reflected in this note is not annotated in the stock price chart. Source: JMP Securities.



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