

Trevena Inc.

## Focus on Phase 2 for TRV130

**What's New?** We are attending the American Pain Society meeting in Tampa this weekend where TRVN has released additional details from its phase 1b trial.

**Phase 1b results are intriguing, but ability to differentiate in safety will be important for the future success of TRV130:** Additional safety data was presented. Overall, all three evaluated doses (1.5mg, 3mg, and 4.5mg) of TRV130 showed lower rates of respiratory depression versus 10mg of morphine. For reported adverse events, TRV130 had similar or fewer incidences of dry mouth, vomiting, and syncope vs. morphine but showed higher rates of nausea, dizziness, headache (with 4.5mg dose), somnolence, pruritus (with 4.5mg dose), and flushing. The overall severity of nausea was lower for TRV130 1.5mg and 3mg vs. morphine as measured through a drug effects questionnaire, which is in-line with the lower rate of vomiting. While we caution the trial was conducted in healthy volunteers and the sample size was small, it raises the importance of the phase 2 study in showing a clear trend in reducing adverse events.

Physicians at the conference appear to be intrigued by the findings of the study and the compound but all noted that TRV130 needs to demonstrate a meaningful safety benefit (with similar efficacy) versus morphine, particularly in terms of its ability to reduce constipation, nausea, vomiting and respiratory depression, to have a place in a heavily genericized market. Based on results we have seen thus far, it appears a dose around 3mg may provide the most optimal balance between efficacy and safety for TRV130.

**Phase 2 under way and will be important in validating proof-of-concept:** TRVN has initiated the phase 2 trial, which will enroll a total of 400 patients and evaluate a range of doses for TRV130. The first part will enroll 150 patients and patients will be randomized to one of 6 cohorts (TRV130 1, 2, 3, and 4 mg every 4 hours, placebo, or morphine 4mg every 4 hours). The second part will evaluate 25 patients in each of 10 consecutive cohorts. Doses in these cohorts will be based on findings from part 1 and prior cohorts to narrow in on the most appropriate doses. Results are expected in 1Q15.

### TRVN: Quarterly and Annual EPS (USD)

	2013		2014		2015		Change y/y		
FY Dec	Actual	Old	New	Cons	Old	New	Cons	2014	2015
Q1	N/A	-0.40E	-0.40E	-0.36E	-0.54E	-0.54E	-0.60E	N/A	-35%
Q2	N/A	-0.44E	-0.44E	-0.40E	-0.50E	-0.50E	-0.58E	N/A	-14%
Q3	-0.64A	-0.47E	-0.47E	-0.43E	-0.46E	-0.46E	-0.49E	27%	2%
Q4	-0.42A	-0.53E	-0.53E	-0.48E	1.91E	1.91E	0.78E	-26%	460%
Year	-1.61A	-1.84E	-1.84E	-1.66E	0.42E	0.42E	-1.02E	-14%	123%
P/E	N/A		N/A			11.6			

Source: Barclays Research.

Consensus numbers are from Thomson Reuters

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PLEASE SEE ANALYST CERTIFICATION(S) AND IMPORTANT DISCLOSURES BEGINNING ON PAGE 3.

Stock Rating

OVERWEIGHT

Unchanged

Industry View

NEUTRAL

Unchanged

Price Target

USD 14.00

Unchanged

Price (01-May-2014)	USD 4.92
Potential Upside/Downside	+185%
Tickers	TRVN

Market Cap (USD mn)	129
Shares Outstanding (mn)	26.23
Free Float (%)	85.88
52 Wk Avg Daily Volume (mn)	0.2
Dividend Yield (%)	N/A
Return on Equity TTM (%)	N/A
Current BVPS (USD)	-3.36

Source: Thomson Reuters

Price Performance

Exchange-Nasdaq

52 Week range

USD 9.95-4.74



Link to Barclays Live for interactive charting

### U.S. Biotechnology

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## U.S. Biotechnology

Industry View: NEUTRAL

## Trevena Inc. (TRVN)

Stock Rating: OVERWEIGHT

Income statement (\$k)	2013A	2014E	2015E	2016E	CAGR
Revenue	135	0	65,000	0	-100.0%
EBITDA (adj)	-22,639	-47,329	12,638	-56,544	N/A
EBIT (adj)	-23,345	-48,000	12,000	-57,150	N/A
Pre-tax income (adj)	-23,585	-48,496	11,491	-57,596	N/A
Net income (adj)	-23,585	-48,496	11,491	-57,596	N/A
EPS (adj) (\$)	-1.61	-1.84	0.42	-2.08	N/A
Diluted shares (k)	14,669	26,369	27,189	27,737	23.7%
DPS	N/A	N/A	N/A	N/A	N/A

Margin and return data	Average				
EBITDA (adj) margin (%)	N/A	N/A	N/A	N/A	N/A
EBIT (adj) margin (%)	N/A	N/A	N/A	N/A	N/A
Pre-tax (adj) margin (%)	N/A	N/A	N/A	N/A	N/A
Net (adj) margin (%)	N/A	N/A	N/A	N/A	N/A
ROIC (%)	0.0	0.0	0.0	0.0	0.0
ROA (%)	0.0	0.0	0.0	0.0	0.0
ROE (%)	-60.5	-95.1	18.2	-891.1	-257.1

Balance sheet and cash flow (\$k)	CAGR				
Tangible fixed assets	343	-128	-266	-172	N/A
Intangible fixed assets	N/A	N/A	N/A	N/A	N/A
Cash and equivalents	37,965	56,339	69,253	12,749	-30.5%
Total assets	42,393	56,771	69,591	13,219	-32.2%
Short and long-term debt	0	0	0	0	N/A
Other long-term liabilities	N/A	N/A	N/A	N/A	N/A
Total liabilities	3,401	5,786	6,316	6,755	25.7%
Net debt/(funds)	-37,965	-56,339	-69,253	-12,749	N/A
Shareholders' equity	38,992	50,985	63,276	6,463	-45.1%
Change in working capital	36,109	51,650	64,079	7,172	-41.7%
Cash flow from operations	-24,239	-41,916	12,614	-56,587	N/A
Capital expenditure	-140	-200	-500	-700	N/A
Free cash flow	-24,099	-41,716	13,114	-55,887	N/A

Valuation and leverage metrics	Average				
P/E (adj) (x)	N/A	N/A	11.6	N/A	11.6
EV/EBITDA (adj) (x)	-0.6	0.1	-1.4	-0.7	-0.6
Equity FCF yield (%)	N/A	N/A	N/A	N/A	N/A
EV/sales (x)	97.6	N/A	-0.3	N/A	48.6
P/BV (x)	N/A	N/A	N/A	N/A	N/A
Dividend yield (%)	N/A	N/A	N/A	N/A	N/A
Total debt/capital (%)	0.0	0.0	0.0	0.0	0.0

Selected operating metrics	Average				
SG&A/sales (%)	N/A	N/A	N/A	N/A	N/A
R&D/sales (%)	N/A	N/A	N/A	N/A	N/A
R&D growth (%)	N/A	N/A	N/A	N/A	N/A
SG&A growth (%)	N/A	N/A	N/A	N/A	N/A

Price (01-May-2014) USD 4.92  
Price Target USD 14.00

**Why Overweight?** Trevena develops GPCR targeted therapies and its Advanced Biased Ligand Explorer platform discovers biased ligands that will help TRVN develop more targeted and selective therapies with improved efficacy and safety. It has two products in ph 2 trials in large markets (AHF and pain), which if successfully developed offer significant market opportunities.

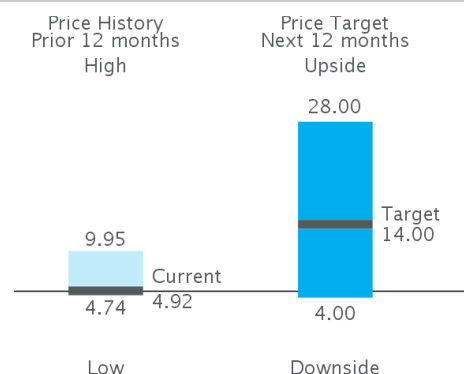
**Upside case** USD 28.00

Our upside scenario of \$28 assumes an FDA approval for TRV130 as well as a positive outcome for the phase 2b for TRV027.

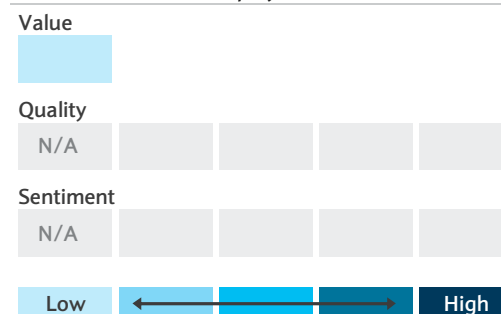
**Downside case** USD 4.00

Our downside scenario of \$4 assumes the TRV027 acute heart failure program fails and TRV130 peak sales are lower than our assumption and represent only \$3/share and some cash value.

## Upside/Downside scenarios



## POINT® Quantitative Equity Scores



Source: POINT®. The scores are valid as of the date of this report and are independent of the fundamental analysts' views. To view the latest scores, please go to the equity company page on Barclays Live.

Source: Company data, Barclays Research  
Note: FY End Dec

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Trevena Inc. (TRVN, 01-May-2014, USD 4.92), Overweight/Neutral, A/C/D/J/L

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**Overweight** - The stock is expected to outperform the unweighted expected total return of the industry coverage universe over a 12-month investment horizon.

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**Neutral** - industry coverage universe fundamentals/valuations are steady, neither improving nor deteriorating.

**Negative** - industry coverage universe fundamentals/valuations are deteriorating.

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Dendreon Corp. (DNDN)	Fibrocell Science Inc. (FCSC)	Gilead Sciences (GILD)
GlycoMimetics Inc. (GLYC)	Halozyne Therapeutics Inc. (HALO)	Idenix Pharmaceuticals (IDIX)
Incyte Corp. (INCY)	Intrexon Corp. (XON)	Medivation Inc. (MDVN)
Regeneron Pharmaceuticals (REGN)	Tetraphase (TTPH)	Trevena Inc. (TRVN)
Vertex Pharmaceuticals (VRTX)		

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IMPORTANT DISCLOSURES CONTINUED

Trevena Inc. (TRVN)

USD 4.92 (01-May-2014)

Stock Rating

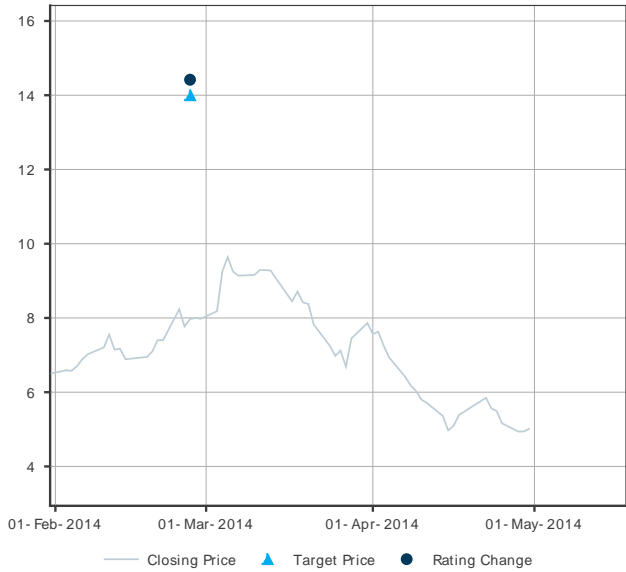
OVERWEIGHT

Industry View

NEUTRAL

Rating and Price Target Chart - USD (as of 01-May-2014)

Currency=USD



Source: IDC, Barclays Research

[Link to Barclays Live for interactive charting](#)

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**Valuation Methodology:** We arrive at our price target using a probability-adjusted NPV analysis. We value the two foremost pipelien products - TRV130 at \$6/share and TRV027 at \$4/share. Including cash value of \$4/share, we arrive at our price target of \$14.

**Risks which May Impede the Achievement of the Barclays Research Price Target:** Downside risks include failure of trials results for both TRV130 and TRV027, ACT/FRX not opting to license TRV027, and inability to raise additional capital in the future.

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