

Equity Research

October 1, 2014

Price: \$19.65 (09/30/2014)**Price Target: \$45.00****OUTPERFORM (1)****Phil Nadeau, Ph.D.**

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Key Data

Symbol	NASDAQ: ZFGN
Market Cap (MM)	\$446.2

Company Quick Take

*Initiated U.S. Ph. III Trial In PWS;
Interim Data Expected By Q4:15***The Cowen Insight**

This morning Zafgen announced the initiation of "bestPWS", a U.S. Ph. III trial of beloranib in patients with Prader-Willi Syndrome (PWS). Initial six-month data is expected during Q4:15. As beloranib is the first agent shown to reduce food seeking behavior in PWS patients, our consultants think it addresses a major unmet need. We expect beloranib's progress to drive outperformance in ZFGN.

U.S. Phase III Trial Initiated With Initial Six-Month Data Anticipated By Q4:2015.


This morning Zafgen announced the initiation of a U.S. Ph. III trial, bestPWS, with beloranib in Prader-Willi Syndrome. The Ph. III trial will enroll approximately 84 obese adolescents (>12 years of age) and adults with PWS. Patients will be randomized to receive beloranib at 1.8 mg or 2.4 mg or placebo via sub-Q injections twice-weekly for six months. Primary endpoints will evaluate improvements in total body fat mass and hyperphagia-related behaviors. Each trial will be considered positive if either endpoint is met with $p < 0.025$ or if both are met with $p < 0.05$. Zafgen anticipates that initial six-month data from trial will be available by Q4:15.

Zafgen's lead compound, beloranib, is a novel small molecule inhibitor of methionine aminopeptidase 2 (MetAP2) that is in development for the treatment of hyperphagia (insatiable appetite) and obesity in PWS, craniopharyngioma-associated obesity, and severe obesity in the general population. In five completed clinical trials with over 200 subjects, beloranib has reduced fat mass and controlled hyperphagia while maintaining an acceptable tolerability and safety profile. Our consultants find the >50% decrease in hyperphagia produced in PWS patients particularly striking, as beloranib is the first agent shown to produce a reduction in food seeking behaviors in these patients, a key area of unmet need. Consultants think that should beloranib reduce hyperphagia by 50% in the real world, it would become standard of care, appropriate for most patients. Our consultants think that beloranib's Phase II data in PWS is "impressive," and they are hopeful that it will be successfully developed.

Upcoming Milestones: Zafgen plans to initiate a Ph. IIb trial with beloranib in severe obesity before YE:14. Zafgen expects to announce interim data from beloranib's Ph. IIa study in hypothalamic injury associated obesity in Q1:2015. Zafgen is planning to initiate a Ph. III trial with beloranib in PWS in EU by H1:2015.

Our Investment Thesis For Zafgen: Prader-Willi syndrome and craniopharyngioma-associated obesity are orphan disorders that each afflict approximately 20K patients in the U.S. and EU. We estimate that beloranib could address a \$1B+ opportunity in these two conditions. Behind beloranib, Zafgen is developing an orally active second-generation MetAP2 inhibitor, ZGN-839, in Nonalcoholic Steatohepatitis (NASH) and

Please see addendum of this report for important disclosures.



type 2 diabetes. Our DCF analysis suggests that Zafgen is undervalued based on beloranib's potential in Prader-Willi and craniopharyngioma-associated obesity alone, with no contribution from other indications or pipeline programs. We expect Zafgen to outperform the market over the next 12-18 months as beloranib is developed, and our DCF-based price target is \$45.

Valuation Methodology And Risks

Valuation Methodology

Biotechnology:

In calculating our 12-month target price, we employ one or more valuation methodologies, which include a discounted earnings analysis, discounted cash flow analysis, net present value analysis and/or a comparable company analysis. These analyses may or may not require the use of objective measures such as price-to-earnings or price-to-sales multiples as well as subjective measures such as discount rates.

We make investment recommendations on early stage (pre-commercial) biotechnology companies based upon an assessment of their technology, the probability of pipeline success, and the potential market opportunity in the event of success. However, because these companies lack traditional financial metrics, we do not believe there are any good methodologies for assigning a specific target price to such stocks.

Investment Risks

Biotechnology:

There are multiple risks that are inherent with an investment in the biotechnology sector. Beyond systemic risk, there is also clinical, regulatory, and commercial risk. Additionally, biotechnology companies require significant amounts of capital in order to develop their clinical programs. The capital-raising environment is always changing and there is risk that necessary capital to complete development may not be readily available.

Risks To The Price Target

Zafgen is developing candidates for the treatment of orphan disorders, obesity, and metabolic conditions. The majority of Zafgen's market capitalization is dependent upon the success of lead candidate beloranib. Beloranib's value could be adversely impacted should its clinical trials fail, should the regulatory agencies deny approval, or should its commercial opportunity not materialize as we project. In fact, all of Zafgen's drug candidates face clinical and regulatory risk. With the future development path depending on the evolution of clinical data, future revenue forecasts are uncertain. The commercial outlook for Zafgen's candidates could additionally be altered by safety/efficacy findings, emerging competition, alterations in the medical treatment paradigm, or changes in the pricing environment. Some of Zafgen's projected market exclusivity depends on patents, which are subject to challenge by generic drugmakers.

Addendum

Stocks Mentioned In Important Disclosures

Ticker	Company Name
ZFGN	Zafgen

Analyst Certification

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Cowen and Company Rating System effective May 25, 2013

Outperform (1): The stock is expected to achieve a total positive return of at least 15% over the next 12 months

Market Perform (2): The stock is expected to have a total return that falls between the parameters of an Outperform and Underperform over the next 12 months

Underperform (3): Stock is expected to achieve a total negative return of at least 10% over the next 12 months

Assumption: The expected total return calculation includes anticipated dividend yield

Cowen and Company Rating System until May 25, 2013

Outperform (1): Stock expected to outperform the S&P 500

Neutral (2): Stock expected to perform in line with the S&P 500

Underperform (3): Stock expected to underperform the S&P 500

Assumptions: Time horizon is 12 months; S&P 500 is flat over forecast period

Cowen Securities, formerly known as Dahlgren Rose & Company, Rating System until May 25, 2013

Buy – The fundamentals/valuations of the subject company are improving and the investment return is expected to be 5 to 15 percentage points higher than the general market return

Sell – The fundamentals/valuations of the subject company are deteriorating and the investment return is expected to be 5 to 15 percentage points lower than the general market return

Hold – The fundamentals/valuations of the subject company are neither improving nor deteriorating and the investment return is expected to be in line with the general market return

Cowen And Company Rating Definitions

Distribution of Ratings/Investment Banking Services (IB) as of 09/30/14

Rating	Count	Ratings Distribution	Count	IB Services/Past 12 Months
Buy (a)	440	59.95%	105	23.86%
Hold (b)	278	37.87%	10	3.60%
Sell (c)	16	2.18%	0	0.00%

(a) Corresponds to "Outperform" rated stocks as defined in Cowen and Company, LLC's rating definitions. (b) Corresponds to "Market Perform" as defined in Cowen and Company, LLC's ratings definitions. (c) Corresponds to "Underperform" as defined in Cowen and Company, LLC's ratings definitions.

Note: "Buy", "Hold" and "Sell" are not terms that Cowen and Company, LLC uses in its ratings system and should not be construed as investment options. Rather, these ratings terms are used illustratively to comply with FINRA and NYSE regulations.

Zafgen Rating History as of 09/30/2014

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Legend for Price Chart:

I = Initiation | 1 = Outperform | 2 = Market Perform | 3 = Underperform | UR = Price Target Under Review | T = Terminated Coverage | \$xx = Price Target | NA = Not Available | S=Suspended

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