COWEN
AND COMPANY

Biotechnology

Genocea Biosciences

Equity Research

Company Quick Take

June 23, 2014

Price: $22.03 (06/23/2014)

Price Target: $40.00

OUTPERFORM (1)

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Key Data

Symbol	NASDAQ: GNCA
Market Cap (MM)	$381.7

GEN-004 Successfully Completes Phase I, Phase IIa On Track To Begin During Q3

The Cowen Insight

Today Genocea announced that GEN-004 successfully completed Phase I, demonstrating safety and producing signs of activity. A Phase IIa trial is on track to begin during Q3:14. We continue to think that Genocea is undervalued based on the promise of GEN-003 and GEN-004, and expect GNCA to Outperform as its pipeline progresses through development.

GEN-004 Safe, Produces Signs Of Activity In Phase I.

Today Genocea released top-line results from GEN-004's first-in-man Phase I trial. GEN-004, is a potential universal pneumococcal vaccine focused on eliciting T_H17 cells. T_H17 cells have been shown to be capable of directing a sterilizing immune response in the absence of antibodies. They are produced in larger numbers by adults who are generally considered "protected" from pneumococcal disease. Genocea has combined the SP0148, SP1912, and SP2108 antigens with an alhydrogel adjuvant to make GEN-004. Using a mouse model of nasal colonization, GEN-004 has demonstrated the ability to protect mice from pneumococcal acquisition. In December 2013, Genocea began the randomized, double-blind Phase I trial of GEN-004 in 90 healthy adult volunteers aged 18-50. Genocea enrolled 18 patients in each of 5 treatment groups: placebo, proteins only, GEN-004 containing 10µg of protein, GEN-004 containing 30µg of protein, and GEN-004 containing 100µg of protein. Patients were dosed three times at 1-month intervals. The top-line results are promising. Most important, GEN-004 met its safety and tolerability goals, and there were no serious adverse events related to the vaccine. Serum IgG titers increased in a dose-dependent manner to each of GEN-004's antigens. There were also measurable increases in peripheral T_H17 responses among subjects receiving the highest dose (100ug) with adjuvant. Genocea will present the complete results from the trial at a medical meeting during H2:14, likely ICAAC (Sept 5-9).

Phase IIa To Begin During Q3:14.

Genocea expects to begin a randomized Phase II human challenge study during Q3:14. Approximately 90 healthy adults will be enrolled to receive either 3 doses of GEN-004 or placebo. Following vaccination, subjects will be nasally challenged with pneumococcal strain 6B. Nasal washes will then be obtained in order to assess 1) the ability of the pneumococcus to colonize the nasal passages and 2) the frequency of T_H17 responses at the mucosal surface. Data from this trial is expected in mid-2015.

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

Much of Genocea's valuation rests on the value of its ATLAS vaccine discovery technology platform, and the revenue potential of its pipeline programs. Determining the value of a technology platform is difficult. Many factors could alter the value, including competition from newer technology platforms, the success or failure of Genocea's candidate vaccines, and the attractiveness of vaccine development more generally. Projecting future sales for any product is difficult, and this is particularly the case for candidates that have yet to be approved. Genocea's stock could be impacted by changes in the regulatory, commercial, or competitive environment for its candidate vaccines or for vaccines more generally. Moreover, the market exclusivity of Genocea's vaccines is largely dependent on their patents, which could be subject to challenge.

Addendum

Stocks Mentioned In Important Disclosures

Ticker	Company Name
GNCA	Genocea Biosciences

Analyst Certification

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Genocea Biosciences has been client(s) of Cowen and Company, LLC in the past 12 months.

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COWEN AND COMPANY RATING DEFINITIONS

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 Dahlman 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

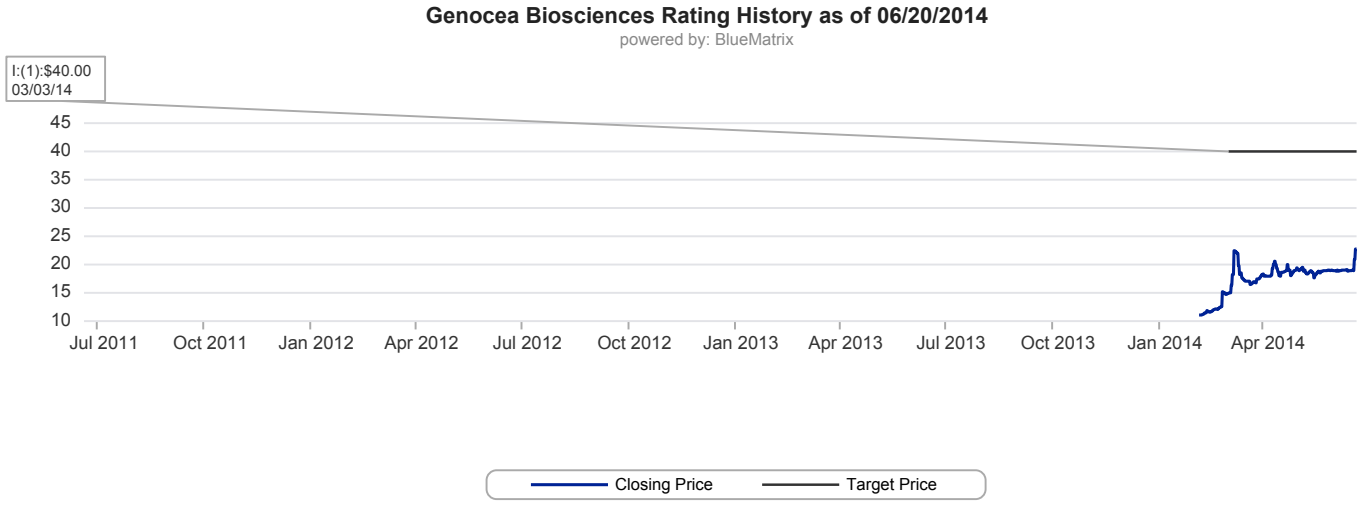
Cowen And Company Rating Definitions

Distribution of Ratings/Investment Banking Services (IB) as of 03/31/14

Rating	Count	Ratings Distribution	Count	IB Services/Past 12 Months
Buy (a)	407	57.08%	85	20.88%
Hold (b)	288	40.39%	8	2.78%
Sell (c)	18	2.52%	1	5.56%

(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.



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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