

Equity Research

August 12, 2014

Price: \$12.64 (08/11/2014)

Price Target: NA

OUTPERFORM (1)

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Key Data

Symbol	NASDAQ: RDUS
52-Week Range:	\$17.32 - 7.46
Market Cap (MM):	\$365.8
Net Debt (MM):	\$0.0
Cash/Share:	\$10.54
Dil. Shares Out (MM):	7.5
Enterprise Value (MM):	\$619.3
ROIC:	NA
ROE (LTM):	NA
BV/Share:	\$1.33
Dividend:	NA

FY (Dec)	2013A	2014E	2015E
Earnings Per Share			

Q1	\$(31.25)	\$(50.45)A	-
Prior Q1	-	-	-
Q2	\$(62.59)	\$(1.68)A	-
Prior Q2	-	\$(1.57)	-
Q3	\$(65.05)	\$(0.55)	-
Prior Q3	-	-	-
Q4	\$(43.19)	\$(0.62)	-
Prior Q4	-	-	-
Year	\$(203.90)	\$(3.97)	\$(2.25)
Prior Year	-	\$(3.95)	-
P/E	NM	NM	NM

Revenue (MM)

Year	\$0.0	\$0.0	\$0.0
EV/S	-	-	-

Earnings Update

Reports Q2: Abaloparatide Phase III Data On Track For YE

The Cowen Insight

Radius reported Q2 financials and provided a pipeline update. In late December, Radius expects to announce top-line Phase III abaloparatide-SC data. The company will also release data from a Phase I PD study on RAD1901 this fall and start a trial in breast cancer with brain mets by YE. We expect RDUS shares to outperform on the basis of positive Phase III data from injectable abaloparatide.

Phase III Abaloparatide-SC Data Likely In Late December

Radius expects to announce top-line data from its 18-month Phase III study comparing daily subcutaneous injections of abaloparatide-SC (subcutaneous injectable) to placebo as well as to a reference Forteo arm in late 2014. Radius has begun commercial research and operations to support a global launch of abaloparatide-SC in 2016. Abaloparatide-SC has been studied in two Phase II trials where it achieved statistically significant BMD increases at hip and spine sites relative to placebo, and favorable BMD efficacy trends relative to Forteo, the leading injectable for osteoporosis with 2013 sales of \$1.2B.

Behind abaloparatide-SC, Radius is developing abaloparatide as a patch for transdermal delivery (abaloparatide-TD). In a Phase II proof-of-concept trial, abaloparatide-TD demonstrated statistically significant and dose-dependent increase in lumbar spine BMD. Radius and partner 3M are conducting additional formulation work, and expect to provide a development update this fall.

RAD1901: MTD Results and Initiation of Phase Ib Trial In metastatic Breast Cancer In H2:2014

Recall RAD1901 is a selective estrogen receptor degrader or SERD for ER+ breast cancer. Radius expects to announce results from a Phase I PD trial on RAD1901 in healthy volunteers this fall. In addition to identifying a maximum tolerated dose, this trial will include PET imaging and other techniques directed at assessing RAD1901's ability to cross the blood brain barrier and degrade the estrogen receptor. Radius is planning to initiate a Phase Ib trial of RAD1901 in breast cancer patients with brain metastasis by YE:2014. We view SERDs as an exciting class of therapeutics that have the potential to make a meaningful impact in patients with hormone-resistant ER+ tumors.

Q2 Financials; Cash Into Q3:15

Radius reported a \$12.6MM net loss, vs. our \$14MME. The company ended Q2 with \$79MM in cash, which it expects to fund operation through mid-2015 and the submission of regulatory filings on abaloparatide-SC.

At A Glance

Our Investment Thesis

Abaloparatide is a novel PTH mimetic that stimulates osteoblast function in a manner that is differentiated from Forteo. In Phase II studies, abaloparatide demonstrated superior trends relative to Forteo in terms of speed of onset and ability to increase BMD at the spine, hip, and femoral neck. In addition, relative to Forteo, abaloparatide was associated with a lower rate of hypercalcemia. A Phase III trial likely to read out in late 2014 is looking to confirm these benefits. We think abaloparatide's benefits over Forteo could allow the product capture a significant portion of Forteo's \$1.2B worldwide market. A transdermal patch formulation (abaloparatide-TD) is in Phase II development, and could further expand the market. RDUS's other clinical candidate, RAD1901, is selective estrogen receptor degrader (SERD) with promising potential in breast cancer and other ER+ driven tumors.

Forthcoming Catalysts

- 18-month fracture data from abaloparatide's Phase III study by year end 2014
- Results from the optimization of abaloparatide-TD's formulation in late 2014
- Data from the Phase I PK/PD study of RAD1901 in healthy volunteers to in late Q3

Base Case Assumptions

- Subcutaneous injection of abaloparatide succeeds in the pivotal Phase III study and receives FDA approval
- Abaloparatide becomes a \$400MM+ drug in the U.S.

Upside Scenario

- Radius successfully develops abaloparatide-TD, and the patch significantly expands the drug's market
- Radius successfully develops RAD1901 for patients with brain mets

Downside Scenario

- Abaloparatide subcutaneous injection fails in the pivotal Phase III study
- Abaloparatide fails to demonstrate a differentiated clinical profile from Forteo and is not able to compete for market share

Price Performance



Source: Bloomberg

Company Description

Radius is developing abaloparatide, a synthetic analog of the first 34 amino acids of human parathyroid hormone related protein (hPTHrP), for osteoporosis patients with high risk for bone fractures. Abaloparatide increases patients' bone mineral density (BMD) by stimulating osteoblasts to promote new bone formation. In the Phase II proof-of-concept trial, daily subcutaneous injections of abaloparatide demonstrated statistical significant BMD increase as compared to placebo as well as a trend of better efficacy as compared to Forteo (a human recombinant 34-amino acid N-terminal fragment of the parathyroid hormone) from Eli Lilly, the only FDA approved anabolic agent. A pivotal Phase III clinical trial is ongoing with top-line data expected by year end 2014. Radius's second drug candidate RAD1901 functions as a selective estrogen receptor down-regulator (SERD) at a high dose. Radius plans to develop RAD1901 for the treatment of ER-positive breast cancer brain metastases.

Analyst Top Picks

	Ticker	Price (08/11/2014)	Price Target	Rating
bluebird bio	BLUE	\$34.50	\$NA	Outperform
Relypsa	RLYP	\$25.70	\$NA	Outperform

Investment Thesis

Radius Health is a biopharmaceutical company focused on the development of two in-licensed drug candidates. Abaloparatide is a peptide analog of the PTH-related protein in Phase III development for osteoporosis. We believe it may prove directionally superior to Eli Lilly's Forteo (a PTH analog), a drug that sold over \$1B in 2013. Data from Radius's Phase III trial comparing daily subcutaneous injections of abaloparatide (abaloparatide-SC) to placebo as well as to a reference Forteo arm are expected in late 2014. Abaloparatide is also being developed in Phase II studies as a patch for transdermal delivery (abaloparatide-TD). If successful, this could substantially broaden the product's appeal by removing the need for daily injections, which are required for abaloparatide and Forteo in their current dosage forms. The second candidate RAD1901 is a selective estrogen receptor degrader or SERD for estrogen receptor positive (ER+) breast cancer. SERDs are a relatively new and exciting class of therapeutics that have the ability to treat hormone-resistant tumors. A Phase I trial on RAD1901 in breast cancer patients with brain metastases is expected to begin in H2:14. A third drug candidate, RAD140, is in preclinical development as a selective androgen receptor modulator for cancer and muscle wasting conditions. Radius completed an IPO in June 2014 raising gross proceeds of approximately \$56MM. We believe the company is financed to mid-2015 and through several important milestones, including pivotal data on abaloparatide. Should abaloparatide receive FDA approval, we believe it has the potential to become the preferred anabolic agent for osteoporosis and claim much of Forteo's current market share. We expect RDUS share to outperform on the basis of positive Phase III data on injectable abaloparatide and advancement of other pipeline candidates.

Radius Health - Upcoming Milestones/Events

Indication/Milestone	Timing
Results from the Phase I study of RAD1901 in healthy volunteers to identify the maximum tolerated dose	H2:14
Formulation optimization for abaloparatide-TD patch	H2:14
18-month treatment fracture data from the pivotal Phase III study of abaloparatide-SC	Q4:14
Initiation of Phase Ib trial of RAD1901 in breast cancer patients with brain mets	YE:14
24-month fracture data from the pivotal Phase III study of abaloparatide-SC	Q2:15
NDA and MAA submissions for abaloparatide-SC	mid:15
Potential FDA and EMA approvals for abaloparatide-SC	H2:16
Possible Commercial launch of abaloparatide-SC	YE:16

Source: Cowen and Company

Radius Health Quarterly P&L Model (\$MM)

	Q1:13A	Q2:13A	Q3:13A	Q4:13A	2013A	Q1:14A	Q2:14A	Q3:14E	Q4:14E	2014E
Abaloparatide-SC U.S. Sales Revenue	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Abaloparatide-SC ex-U.S. Royalty Revenue	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Revenue	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
COGS	-	-	-	-	-	-	-	-	-	-
<i>GMs</i>										
R&D	17.3	16.2	15.5	11.5	60.5	9.7	10.6	12.5	14.5	47.3
SG&A	1.6	1.4	1.6	2.2	6.8	2.1	3.1	3.6	3.7	12.5
Total Operating Expenses	18.9	17.7	17.2	13.7	67.4	11.9	13.7	16.1	18.2	59.8
Income from Operations	(18.9)	(17.7)	(17.2)	(13.7)	(67.4)	(11.9)	(13.7)	(16.1)	(18.2)	(59.8)
<i>Op Margins</i>										
Interest and Investment Income	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.2
Other Income (expense)	11.3	(1.2)	(2.6)	1.6	9.1	(2.2)	1.5	0.0	0.0	(0.7)
Interest expense	(0.7)	(0.7)	(0.6)	(0.5)	(2.4)	(0.4)	(0.5)	(0.5)	(0.5)	(1.9)
Net Loss	(8.3)	(19.5)	(20.3)	(12.5)	(60.7)	(14.5)	(12.6)	(16.5)	(18.6)	(62.2)
Accretion of Preferred Stock	(3.6)	(4.4)	(4.7)	(4.8)	(17.5)	(5.0)	0.0	0.0	0.0	(5.0)
Pre Tax Earnings (Losses)	(11.9)	(23.9)	(25.1)	(17.3)	(78.2)	(19.5)	(12.6)	(16.5)	(18.6)	(67.2)
<i>Tax rate</i>	<i>0%</i>	<i>0%</i>	<i>0%</i>	<i>0%</i>	<i>0%</i>	<i>0%</i>	<i>0%</i>	<i>0%</i>	<i>0%</i>	<i>0%</i>
Income Tax	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Net Income (Loss)	(11.9)	(23.9)	(25.1)	(17.3)	(78.2)	(19.5)	(12.6)	(16.5)	(18.6)	(67.2)
GAAP EPS	(\$31.25)	(\$62.59)	(\$65.05)	(\$43.19)	(\$203.90)	(\$50.45)	(\$1.68)	(\$0.55)	(\$0.62)	(\$3.97)
Diluted Shares	0.4	0.4	0.4	0.4	0.4	0.4	7.5	29.8	30.0	16.9

Source: Cowen and Company

Radius Health Annual P&L Model (\$MM)

	2013A	2014E	2015E	2016E	2017E	2018E
Abaloparatide-SC U.S. Sales Revenue	0.0	0.0	0.0	5.0	70.0	125.0
Abaloparatide-SC ex-U.S. Royalty Revenue	0.0	0.0	0.0	0.0	0.8	6.0
Total Revenue	0.0	0.0	0.0	5.0	70.8	131.0
COGS	-	-	-	0.9	10.5	17.5
<i>GMs</i>	<i>0%</i>	<i>0%</i>	<i>0%</i>	<i>83%</i>	<i>85%</i>	<i>86%</i>
R&D	60.5	47.3	63.0	67.0	70.0	72.0
SG&A	6.8	12.5	16.0	54.0	80.0	90.0
Total Operating Expenses	67.4	59.8	79.0	121.9	160.5	180.4
Income from Operations	(67.4)	(59.8)	(79.0)	(116.9)	(89.8)	(49.4)
<i>Op Margins</i>	<i>0%</i>	<i>0%</i>	<i>0%</i>	<i>0%</i>	<i>0%</i>	<i>0%</i>
Interest and Investment Income	0.0	0.2	1.0	0.8	0.5	1.0
Other Income (expense)	9.1	(0.7)	0.0	0.0	0.0	0.0
Interest expense	(2.4)	(1.9)	(2.0)	(2.0)	(1.0)	(0.5)
Net Loss	(60.7)	(62.2)	(80.0)	(118.1)	(90.3)	(48.9)
Accretion of Preferred Stock	(17.5)	(5.0)	0.0	0.0	0.0	0.0
Pre Tax Earnings (Losses)	(78.2)	(67.2)	(80.0)	(118.1)	(90.3)	(48.9)
<i>Tax rate</i>	<i>0%</i>	<i>0%</i>	<i>0%</i>	<i>0%</i>	<i>0%</i>	<i>0%</i>
Income Tax	0.0	0.0	0.0	0.0	0.0	0.0
Net Income (Loss)	(78.2)	(67.2)	(80.0)	(118.1)	(90.3)	(48.9)
GAAP EPS	(\$203.90)	(\$3.97)	(\$2.25)	(\$3.15)	(\$2.10)	(\$1.00)
Diluted Shares	0.4	16.9	35.5	37.5	43.0	49.0

Source: Cowen and Company

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

Radius Health is unprofitable, has no approved products, and will likely need to raise additional capital from the public markets prior to turning profitable. There is no guarantee that abaloparatide's Phase III study will meet its primary endpoint of fracture reduction. Even if successful, abaloparatide may face other commercial and competitive risks that thwart adoption.

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 it there are any good methodologies for assigning a specific target price to such stocks.

Addendum

Stocks Mentioned in Important Disclosures

Ticker	Company Name
BLUE	bluebird bio
RDUS	Radius Health
RLYP	Relypsa
SNSS	Sunesis Pharmaceuticals

Analyst Certification

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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

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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

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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 06/30/14

Rating	Count	Ratings Distribution	Count	IB Services/Past 12 Months
Buy (a)	417	58.57%	94	22.54%
Hold (b)	279	39.19%	7	2.51%
Sell (c)	16	2.25%	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.

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Radius Health Rating History as of 08/11/2014

powered by: BlueMatrix



bluebird bio Rating History as of 08/11/2014

powered by: BlueMatrix



Relypsa Rating History as of 08/11/2014

powered by: BlueMatrix



Sunesis Pharmaceuticals Rating History as of 08/11/2014

powered by: BlueMatrix



Rating Change - 2/21/2006 - Outperform Rating

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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