William Blair

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Sage Therapeutics, Inc.

First Quarter in Line, Additional Phase I/II Data Continues to Show Strong Response as SAGE-547 Enters Phase III

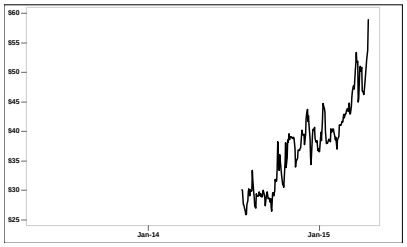
Stock Rating:	**Outperform**
Company Profile:	**Aggressive Growth**
Price Target:	$75.00
Symbol:	SAGE (NASDAQ)
Price:	$58.57 (52-Wk.: $24-$64)
Market Value (mil.):	$1,610
Fiscal Year End:	December
Long-Term EPS Growth Rate:	
Dividend/Yield:	None

		2014A	2015E	2016E
Estimates				
EPS	Q1	NA	$-0.66	NA
	Q2	NA	$-0.76	NA
	Q3	NA	$-0.77	NA
	Q4	NA	$-0.79	NA
	FY	$-1.67	$-2.98	$-3.35
	CY		$-2.98	$-3.35
Valuation				
FY P/E		NM	NM	NM
CY P/E			NM	NM

Trading Data (FactSet)	
Shares Outstanding (mil.)	26
Float (mil.)	23
Average Daily Volume	242,337

Financial Data (FactSet)	
Book Value Per Share (MRQ)	4.8
Return on Equity (TTM)	-52.8

Two-Year Price Performance Chart



Sources: FactSet, William Blair & Company estimates

- Before the markets opened Thursday morning, May 14, Sage Therapeutics announced first-quarter earnings and the results of its Phase I/II trial with lead candidate SAGE-547 to treat super-refractory status epilepticus (SRSE), a condition characterized by prolonged seizures with no approved therapies but a standard-of-care that involves a cocktail of drugs (including benzodiazepines and antiepileptic drugs) and eventually a medically induced coma. Dr. Stephen Kanes, Sage Therapeutics' chief medical officer, will be presenting the complete trial results at 2:50 p.m. on Friday, May 15 at the Antiepileptic Drug and Device Trials XIII conference in Miami, Florida. The company plans to initiate a randomized, double-blind, placebo-controlled phase III trial (called STATUS) for SAGE-547 in SRSE by mid-2015 (exhibit 1) following end of Phase II discussions with regulators earlier in the year.

- In the final Phase I/II results, 77% (17/22) of the evaluable patients reached the primary endpoint of being successfully weaned off their anesthetic agents while SAGE-547 was dosed during the maintenance phase, with 13 out of 16 patients reaching the endpoint on the standard dose (plasma exposure of about 200 nM) while 4 out of 6 patients reached the endpoint on the higher dose regimen (plasma exposure of about 300 nM). In addition, 77% of the patients were successfully weaned off SAGE-547 without the recurrence of SRSE in the 24-hour period following treatment, which is the primary endpoint of the company's Phase III study. In the responder group, four patients had recurrence of status epilepticus, one patient in the one- to two-week period following weaning and three patients in the three- to four-week period. While some investors may be concerned about recurrence, we believe outcomes from all responders heavily weigh in favor of SAGE-547 responders versus non-responders and note that the SRSE population had failed significant rounds of prior antiepileptic and anesthetic drug combinations.

- In addition to the primary efficacy endpoints, tolerability of SAGE-547 was demonstrated with no drug-related serious adverse events. The most common adverse events (reported in four or more patients) were fever, hypotension, diarrhea, peripheral edema, anemia, and blood urea nitrogen increases. We note that patients enrolled in the trial were status epilepticus patients with a mean duration of eight days who failed therapy with first- and second-line antiepileptic agents and had failed to be weaned from third-line IV general anesthesia administered over 24 hours. Underlying etiology of SRSE in the patient population was attributed factors such as infections, brain hemorrhages, worsening seizures, primary/metastatic tumors, toxic ingestion, stroke, sickle cell anemia, and Lupus, which underscores the severity of diseases in the patient population that results in SRSE. SAGE-547 has received fast track status and an orphan designation from the FDA for this indication, and we continue to believe that the company has shown SAGE-547 to be both safe and efficacious in a patient population with few other alternatives. While the company has not produced placebo controlled data to date, breakthrough therapy designation may still be available due to the unmet medical need and quality of response data to date. However, in the SRSE indication, there is limited high-quality data on historical responses of the various cocktails used in this indication.

Sage Therapeutics, based in Cambridge, Massachusetts, is a development-stage biotechnology company focused on therapies for rare central nervous system disorders.

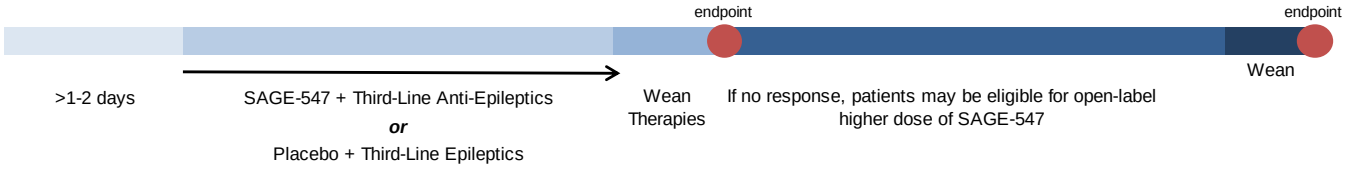
- The company also reported a post-hoc analysis of the continuous EEG data in 14 patients and showed that SAGE-547 administration was associated with an increase in EEG suppression with peak suppression occurring about one hour into the loading phase (P<0.001) and terminal suppression that was significantly greater than baseline (P<0.005). Management believes that the evidence provided by the post-hoc analyses shows clear evidence of an additive pharmacodynamic activity of SAGE-547 that contributed to the patients that were weaned off general anesthesia.

- Following a recent FDA meeting, the company will initiate its pivotal Phase III trial in the near term, which will be randomized 1:1 (treatment: placebo in addition to third-line anti-seizure agents), double-blind, placebo-controlled trial designed to assess efficacy and safety in roughly 126 patients (designed to provide the study with 90% power) with SRSE aged 2 years and older. The primary endpoint is successful resolution of status epilepticus (SE) after weaning patient off all third-line agents and SAGE-547 or placebo, without recurrence of SE within 24 hours after completion of a six-day treatment. Secondary endpoints include rate of recovery, regaining of consciousness, mental status, and functional outcome. Last month, Sage also announced the initiation of enrollment in Study 302, the company's Phase III expanded access protocol. In addition to SRSE, SAGE-547 is being explored in essential tremor and severe postpartum depression with data expected by midyear. The company also plans to advance its pipeline candidates SAGE-689 and SAGE-217 into the clinic by year end. SAGE-689 is being developed as an adjunctive IV therapy for status epilepticus, and SAGE-217 is being developed as an oral therapy to treat orphan epilepsies, such as Dravet and Rett syndromes. From preclinical work published by the company, we view SAGE-217 as a particularly intriguing asset due to the pharmacokinetic profile that shows increased specificity for the GABA α4 receptor. While orphan epilepsies are becoming a more focused area of drug development, we believe several recent entrants into the space are looking to carve a niche in these indications due to the need for orphan exclusivity rather than following solid clinical signals of efficacy. We wait to see what Sage's strategy will be in these indications as we believe the company may take a different approach to development of SAGE-217 versus its competitors.

- Regarding the company's financials, during the first quarter, Sage reported a net loss of $16.9 million or $0.66 per share, below consensus of a loss of $13.1 million or $0.49 per share and our estimate of a loss of $12.5 million or $0.63 per share. R&D costs were $12.9 million, above consensus of $11.0 million and our estimate of $9.0 million. G&A expenses were reported as $4 million, in line with consensus of $4.2 million and our estimate of $4.0 million. Pro forma cash including the company's follow-on offering in the second quarter is $242.4 million, which it believes will fund operations through mid-2017.

- We continue to rate Sage Therapeutics shares Outperform with a $75 price target. The company's lead candidate, SAGE-547, is being developed for a severe unmet medical need in SRSE that has no currently approved therapies. SRSE affects about 25,000 individuals who have progressed to this state after being unresponsive to treatment with first-line benzodiazepine therapy and second-line antiepileptic drug (AED) therapy. SRSE has a 30% to 50% rate of mortality and morbidity. In addition, the company has two follow-on indications for SAGE-547 (essential tremor and severe post-partum depression) that are being tested in exploratory trials to readout in mid-2015 as well as two pipeline compounds, SAGE-689 and SAGE-217, which are guided to enter the clinic in late 2015.

Exhibit 1
Sage Therapeutics, Inc.
Pivotal Phase III Study Protocol for SAGE-547 in SRSE



Source: Company reports, William Blair & Company, L.L.C.

Exhibit 2
Sage Therapeutics
First Quarter 2015 Results

$ in thousands	SAGE Q1 15A	WB Q1 15E	Q/Q Growth
Total Revenue	$ -	$ -	NA
R&D	$ 12,900	$ 9,000	278%
G&A	$ 3,997	$ 4,000	-55%
Operating Income	$ (16,897)	$ (13,000)	NM
Net Income	$ (16,871)	$ (12,500)	NM
EPS	$ (0.66)	$ (0.63)	NM

Source: Company reports, William Blair & Company L.L.C. estimates
Consensus estimates reported by FactSet

Valuation
We rate Sage Therapeutics shares Outperform with a price target of $75. Our price target is based on an NPV analysis of SAGE-547, risk-adjusted 80% for clinical probability of success. We estimate peak sales of SAGE-547 of $1.5 billion by penetrating 65% of the population with SRSE in the United States and 40% of the population in Europe. We do not assign any NPV for the company's pipeline compounds, SAGE-217 and SAGE-689, which would provide upside to our valuation.

Risks
An investment in shares of Sage Therapeutics involves clinical, regulatory, and financial risks that are typical for developmental-stage biopharmaceutical companies. Although we believe that Sage Therapeutics is addressing a significant unmet medical need in SRSE, the company relies heavily on the success of SAGE-547. In addition, the company faces competitive risk to its pipeline products for orphan epilepsies.

Our model is included on the following page.

William Blair

Sage Therapeutics
Earnings Model
5/14/15
($ in thousands except EPS data)

Rating: Outperform
Company Profile: Aggressive Growth
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	2012(A)	2013(A)	2014(A)	Q1(A)	Q2(E)	Q3(E)	Q4(E)	2015(E)	2016(E)	2017(E)	2018(E)	2019(E)
Product Revenue	-	-	-	-	-	-	-	-	0	57,795	167,548	433,588
SAGE-547	-	-	-	-	-	-	-	-	0	57,795	167,548	433,588
SAGE-687	-	-	-	-	-	-	-	-	-	-		
SAGE-217	-	-	-	-	-	-	-	-	-	-	-	-
Other Revenue		-	-	-	-	-	-	-	-	-		
Total Revenue	-	-	-	-	-	-	-	-	-	57,795.1	167,548.4	433,587.7
yr/yr growth		NM	NA	NA	NA	NA	NA	NA	NA	NA	189.9%	158.8%
q/q growth				NA	NA	NA	NA					
incremental rev q/q												
Cost of Goods Sold	-	-	0	0	0	-	-	-	-	11,559	33,510	86,718
Gross Profit	-	-	0	0	0	0	0	0	0	46,236	134,039	346,870
SG&A	2,402	3,922.0	9,710	3,997	5,000	6,000	6,000	20,997	25,000	28,750	38,812.5	50,456.3
Growth		63%	20%					116%	19%	15%	35%	30%
R&D	7,229	14,357.0	24,100	12,900	15,000	14,500	15,000	57,400	64,000	71,360	78,496.0	82,420.8
Growth		99%	68%	209%	242%	120%	68%	138%	11%	12%	10%	5%
		-	-	-	-	-	-	-			-	-
Total Operating Expenses	9,631	18,279	33,810	16,897	20,000	20,500	21,000	78,397	89,000	100,110	117,309	132,877
			85%	192%	223%	116%	70%	132%	14%	12%	17%	13%
	-											
Operating Income	(9,631)	(18,279)	(33,810)	(16,897)	(20,000)	(20,500)	(21,000)	(78,397.0)	(89,000.0)	(53,873.9)	50,240	300,711
growth y/y (%)			85%	192%	223%	116%	70%	132%	14%	-39%	-193%	499%
Depreciation and Amortization			33	13	13	13	13	50	100	100	100	100
EBITDA	(9,631)	(18,279)	(33,777)	(16,885)	(19,988)	(20,488)	(20,988)	(78,347)	(88,900)	(53,774)	50,340	300,811
Interest income (expense), net	-	1	8	21.0								
Other income (expense), net	(1.0)	(3.0)	(9)	5	500.0	500.0	500.0	2,000	2,000	2,000	2,000	2,000
Income Before Taxes	(9,632.0)	(18,281.0)	(33,811)	(16,871.0)	(19,500.0)	(20,000.0)	(20,500.0)	(74,871)	(87,000)	(51,874)	52,239.9	302,710.7
Income Tax Provision	-	-	-	-	-	-	-	-	-	-	18,806.35	108,975.84
Effective Tax Rate	0%	0%	0%	0.0%	0.0%	0.0%	0.0%	0%	0%	0%	36%	36%
Accretion of redeemable conv pref stock to redemp value	(4)	(7)	(2,294)									
Net Income (loss)	$ (9,636)	$ (18,288)	$ (36,105.0)	(16,871.0)	(19,500.0)	(19,999.9)	(20,500.0)	$ (74,870.9)	$ (86,999.9)	$ (51,873.9)	$ 33,433.5	$ 193,734.8
Net loss per share (fully diluted)	$ (8.62)	$ (12.26)	$ (1.67)	$ (0.66)	$ (0.76)	$ (0.77)	$ (0.79)	$ (2.98)	$ (3.35)	$ (1.82)	$ 1.09	$ 5.95
Basic and diluted weighted avg. shares of common out	1,118	1,492	21,574	25,656	25,756	25,856	25,956	25,806	26,581	28,581	30,581	32,581

Key Ratios (GAAP unless noted)

Gross Margin	NM	NM	NM	NM	NM	NM	NM	NM	NM	80.0%	80.0%	80.0%
R&D (% Total Rev.)	NM	NM	NM	NM	NM	NM	NM	NM	NM	123.5%	46.8%	19.0%
SG&A (% Total Rev.)	NM	NM	NM	NM	NM	NM	NM	NM	NM	49.7%	23.2%	11.6%
Operating Margin	NM	NM	NM	NM	NM	NM	NM	NM	NM	-93.2%	30.0%	69.4%
Net Income Margin	NM	NM	NM	NM	NM	NM	NM	NM	NM	-89.8%	20.0%	44.7%
Revenue Growth												
Growth Yr/Yr	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	190%	159%
Growth Q/Q	NM			NM	NM	NM	NM					
SG&A Growth												
Growth Yr/Yr	NM	63%	148%	147%	177%	109%	76%	116%	19%	15%	35%	30%
Growth Q/Q	NM			17%	25%	20%	0%					
R&D Growth												
Growth Yr/Yr	NM	99%	68%	209%	242%	120%	68%	138%	11%	12%	10%	5%
Growth Q/Q	NM			44%	16%	-3%	3%					

IMPORTANT DISCLOSURES
William Blair or an affiliate is a market maker in the security of Sage Therapeutics, Inc.

William Blair or an affiliate expects to receive or intends to seek compensation for investment banking services from Sage Therapeutics, Inc. within the next three months.

Additional information is available upon request.

This report is available in electronic form to registered users via R*Docs™ at www.rdocs.com or www.williamblair.com.

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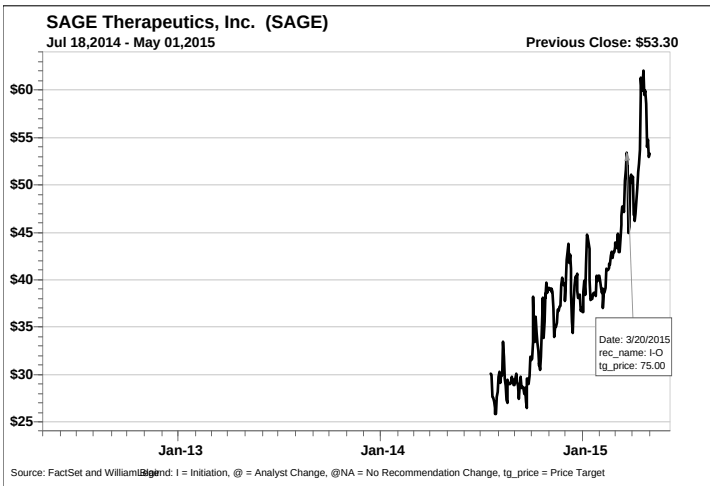
DOW JONES: 18,060.49
S&P 500: 2,098.48
NASDAQ: 4,981.69



Current Rating Distribution (as of 04/30/15)

Coverage Universe	Percent	Inv. Banking Relationships*	Percent
Outperform (Buy)	65	Outperform (Buy)	14
Market Perform (Hold)	32	Market Perform (Hold)	2
Underperform (Sell)	2	Underperform (Sell)	0

*Percentage of companies in each rating category that are investment banking clients, defined as companies for which William Blair has received compensation for investment banking services within the past 12 months.

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