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Sage Therapeutics, Inc.

End of Phase II Meeting Outlines Phase III Trial Design and Path to Regulatory Submission

- Before the market open today, April 2, Sage Therapeutics reported a positive end of Phase II meeting with the FDA and the trial design of its Phase III study for SAGE-547 to treat severe refractive status epilepticus (SRSE), which could form the basis of a regulatory submission. We believe that the proposed Phase III trial would be the foundation of an NDA submission and, given the size, may have the potential to be stopped early if clear efficacy is observed at an interim analysis. An expanded access study will also be initiated in conjunction with the Phase III to treat patients with limited treatment options.

- As shown in exhibit 1, compared with the Phase I/II single-arm trial, the Phase III trial will be a 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 approximately 126 patients (designed to provide the study with 90% power) with SRSE age 2 years and older. The primary endpoint is successful resolution of status epilepticus (SE) after weaning the 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. Although not stated in the press release, we anticipate the study, if it was completed according to the design, could read out by the first half of 2017.

- Importantly, patients who fail to respond to the initial treatment (either SAGE-547 or placebo) in the Phase III study may be eligible to be treated with an open-label, higher dose regimen of SAGE-547. In addition to the Phase III trial, the company also plans to initiate an open-label, expanded access protocol for patients with SRSE and limited treatment options with consistent dosing regimen, trial procedure, and assessment of patient outcome as the Phase III trial. We believe that the caveat to the study protocol and expanded access protocol could be the basis for potentially stopping the studies early if the majority of initially treated patients do not respond to current standard-of-care (third-line anti-epileptic therapy), are switched to SAGE-547, and subsequently respond.

- The company has a Phase I/II trial in which the primary endpoint of safety and tolerability was achieved in all patients. Of the 17 evaluable patients for efficacy, 71% of patients (12 of 17) achieved the efficacy endpoint of weaning off general anesthetic while SAGE-547 was being administered, and being weaned off SAGE-547 without recurrence of SRSE. The company expects the full study readout in mid-2015. In addition to the clinical trial cases, SAGE-547 has received emergency-use investigational new drug (IND) status for 10 patient cases. Of the nine evaluable emergency-use cases, 78% (7 of 9) of the patients were able to wean off general anesthetic and SAGE-547 with no SRSE and duration of effect greater than, or equal to, 24 hours. The trial is in progress with the company having received a protocol amendment from the FDA for higher dosing and to treat patients as young as 2 years old. Results are expected to be announced at the Antiepileptic Drug and Device Trials XIII Conference taking place May 13-15.

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

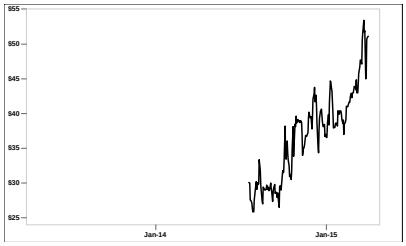
Stock Rating:	**Outperform**
Company Profile:	**Aggressive Growth**
Price Target:	$75.00
Symbol:	SAGE (NASDAQ)
Price:	$50.86 (52-Wk.: $24-$55)
Market Value (mil.):	$1,313
Fiscal Year End:	December
Long-Term EPS Growth Rate:	
Dividend/Yield:	None

	2014A	2015E	2016E
Estimates			
EPS FY	$-1.67	$-3.09	$-2.95
CY		$-3.09	$-2.95
Valuation			
FY P/E	NM	NM	NM
CY P/E		NM	NM

Trading Data (FactSet)	
Shares Outstanding (mil.)	26
Float (mil.)	20
Average Daily Volume	173,620

Financial Data (FactSet)	
Long-Term Debt/Total Capital (MRQ)	0.0
Book Value Per Share (MRQ)	4.8
Return on Equity (TTM)	-52.8

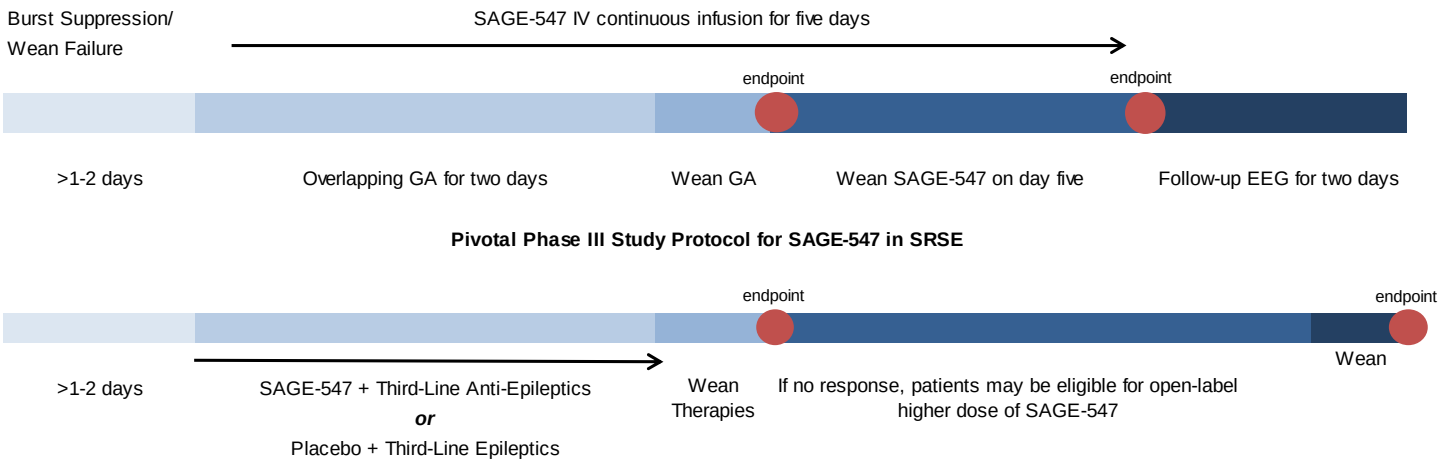
Two-Year Price Performance Chart



Sources: FactSet, William Blair & Company estimates

- We rate shares of Sage Therapeutics 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, we note that 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 read out in mid-2015 as well as two pipeline compounds, SAGE-689 and SAGE-217, that are guided to enter the clinic in late 2015 (exhibit 2).

Exhibit 1
Sage Therapeutics, Inc.
Study Protocol Comparison



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

Exhibit 2
Sage Therapeutics, Inc.
2015 Events

Date	Product	Event	Description/Comments
May 13-15	SAGE-547	Clinical	Final data from Phase I/II open-label trial at Antieplileptic Drug and Device Conference
Mid-2015	SAGE-547	Clinical	Initiate registration trial for SRSE
Mid-2015	SAGE-547	Clinical	Data readout from exploratory Phase IIa essential tremor trial
Mid-2015	SAGE-547	Clinical	Data readout from exploratory Phase IIa severe postpartum depression trial
Late 2015	SAGE-689	Clinical	Initiate Phase I trial
Late 2015	SAGE-217	Clinical	Initiate Phase I trial

Sources: Company reports and William Blair & Company, L.L.C. estimates

Valuation

We rate shares of Sage Therapeutics Outperform with a price target of $75. Our price target of $75 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.

Exhibit 3
Sage Therapeutics, Inc.
Risk-Adjusted Sum-of-the-Parts Valuation

Program	Peak Sales	Discount Rate	Probability of Success	Value	Value Per Share
SAGE-547 in SRSE (U.S./ex-U.S.)	$1.95B	11%	80%	$1,803,346	$77.18
Cash Per Share				$127,766	$5.47
Discounted value of future net loss				($169,290)	($7.25)
Sum-of-the-parts NPV Valuation				$1,761,821	$75.40

Source: William Blair & Company L.L.C. estimates

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.

William Blair

Sage Therapeutics
Earnings Model
4/2/15
($ in thousands except EPS data)

Rating: Outperform
Company Profile: Aggressive Growth
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	2012(A)	2013(A)	2014(A)	Q1(E)	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	4,000	5,000	6,000	6,000	21,000	24,570	28,256	38,144.9	49,588.4
Growth		63%	20%					116%	17%	15%	35%	30%
R&D	7,229	14,357.0	24,100	9,000	10,000	12,000	12,000	43,000	37,000	41,255	45,380.5	47,649.5
Growth		99%	68%	116%	128%	82%	34%	78%	12%	12%	10%	5%
		-	-	-	-	-	-	-			-	-
Total Operating Expenses	9,631	18,279	33,810	13,000	15,000	18,000	18,000	64,000	61,570	69,511	83,525	97,238
			85%	125%	142%	90%	46%	89%	-4%	13%	20%	16%
	-											
Operating Income	(9,631)	(18,279)	(33,810)	(13,000)	(15,000)	(18,000)	(18,000)	(64,000.0)	(61,570.0)	(23,274.4)	84,023	336,350
growth y/y (%)			85%	125%	142%	90%	46%	89%	-4%	-62%	-461%	300%
Depreciation and Amortization			33	13	13	13	13	50	100	100	100	100
EBITDA	(9,631)	(18,279)	(33,777)	(12,988)	(14,988)	(17,988)	(17,988)	(63,950)	(61,470)	(23,174)	84,123	336,450
Interest income (expense), net	-	1	8									
Other income (expense), net	(1.0)	(3.0)	(9)	500	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)	(12,500.0)	(14,500.0)	(17,500.0)	(17,500.0)	(60,000)	(59,570)	(21,274)	86,022.9	338,349.8
Income Tax Provision	-	-	-	-	-	-	-	-	-	-	30,968.26	121,805.92
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)	(12,500.0)	(14,500.0)	(17,499.9)	(17,500.0)	$ (59,999.9)	$ (59,569.9)	$ (21,274.4)	$ 55,054.7	$ 216,543.9
Net loss per share (fully diluted)	$ (8.62)	$ (12.26)	$ (1.67)	$ (0.63)	$ (0.72)	$ (0.87)	$ (0.87)	$ (3.09)	$ (2.95)	$ (0.93)	$ 2.22	$ 8.07
Basic and diluted weighted avg. shares of common out	1,118	1,492	21,574	19,901	20,001	20,101	20,201	20,051	20,826	22,826	24,826	26,826

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	71.4%	27.1%	11.0%
SG&A (% Total Rev.)	NM	NM	NM	NM	NM	NM	NM	NM	NM	48.9%	22.8%	11.4%
Operating Margin	NM	NM	NM	NM	NM	NM	NM	NM	NM	-40.3%	50.1%	77.6%
Net Income Margin	NM	NM	NM	NM	NM	NM	NM	NM	NM	-36.8%	32.9%	49.9%
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%	17%	15%	35%	30%
Growth Q/Q	NM			17%	25%	20%	0%					
R&D Growth												
Growth Yr/Yr	NM	99%	68%	116%	128%	82%	34%	78%	-14%	12%	10%	5%
Growth Q/Q	NM			1%	11%	20%	0%					

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Additional information is available upon request.

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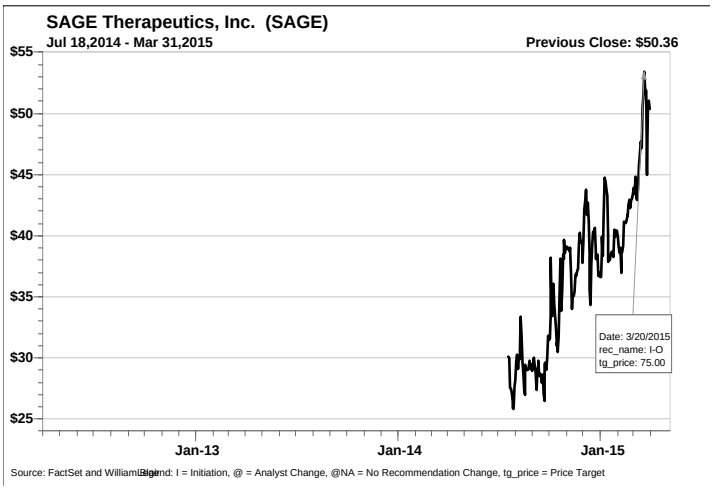
DOW JONES: 17,698.18
S&P 500: 2,059.69
NASDAQ: 4,880.23



Current Rating Distribution (as of 03/31/15)

Coverage Universe	Percent	Inv. Banking Relationships*	Percent
Outperform (Buy)	65	Outperform (Buy)	16
Market Perform (Hold)	33	Market Perform (Hold)	3
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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