November 14, 2014

WELLS FARGO SECURITIES

Equity Research

Calithera Biosciences, Inc.

CALA: Q3--2015 To Highlight CB-839's Profile, Provide Catalysts

Outperform / V

Sector: Biotechnology
Market Weight

- **Summary:** Prior to the November 14 open, Calithera issued a press release and filed its 10-Q for Q3 2014. As the company recently completed an IPO, there were no major clinical updates in either document. At the upcoming ASH meeting in December, Calithera is to present four preclinical abstracts for lead hematology/oncology drug CB-839, as well as host an investor event on Saturday, December 6. Calithera is on track to initiate its planned Phase I(b) combination studies for CB-839 by late 2014/early 2015. With four cases of disease stabilization observed in blood cancers and solid tumors in the three ongoing Phase I monotherapy studies (as of late July), we look to 2015 for meaningful clinical updates on glutaminase inhibitor CB-839 at multiple major medical meetings to help define this drug's promising, albeit early profile. We see CALA as undervalued based on CB-839's potential applicability across multiple solid tumors blood cancers, a strong management team, and well-defined clinical development strategy for CB-839. Due to model changes, our GAAP FY2014 and FY2015 losses per share widen to -$2.40 from -$1.39 and narrow to -$1.56 from -$1.63, respectively.
- **2015 to provide meaningful updates on CB-839's Phase I/II profile as monotherapy and in combination with standard of care agents.** The three monotherapy CB-839 studies continue to progress and management expects to initiate the Phase I(b) combination studies in triple negative breast (CB-839 + paclitaxel) and third line+ multiple myeloma (CB-839 + pomalidomide + dexamethasone) by late 2014. Updated Phase I monotherapy data in solid tumors, multiple myeloma (MM)/non-Hodgkin's lymphoma, and acute leukemias (ALL/AML) are likely to be presented at the AACR and/or ASCO meeting(s). The International Myeloma Workshop in September could be a good venue to provide updated Phase I monotherapy results to global MM clinicians. By late 2015 initial Phase I(b) combination data from the TNBC and MM studies should begin to emerge at the ASH and San Antonio Breast Conference Symposium in December. Please refer to Exhibit 1 in body of the note for more details. *(Continued on following page.)*

Valuation Range: $19.00 to $20.00
Our sum-of-parts valuation uses P/S multiples of 4.0-5.5x applied to 2025E revenue of $398MM and discounted at 18-20%. Key risks include clinical trial failure, a safety signal for CB-839, and financing risk.

Investment Thesis:
We believe CALA is under-valued based on CB-839's long-term potential in end-stage myeloma and triple-negative breast cancer.

Earnings Estimate Revised Down

EPS	2013A	2014E Curr.	2014E Prior	2015E Curr.	2015E Prior
Q1 (Mar.)	NE	NE A		($0.34)	NC
Q2 (June)	NE	(1.22) A	NC	(0.37)	NC
Q3 (Sep.)	(34.21)	**(16.85) A**	**(0.28)**	(0.40)	NC
Q4 (Dec.)	NE	**(0.33)**	**(0.31)**	(0.44)	NC
FY	($3.03)	**($2.40)**	**(1.39)**	**($1.56)**	**(1.63)**
CY	($3.03)	($2.40)		($1.56)	
FY P/EPS	NM	NM		NM	
Rev.(MM)	$0	$0		$0	

Source: Company Data, Wells Fargo Securities, LLC estimates, and Reuters
NA = Not Available, NC = No Change, NE = No Estimate, NM = Not Meaningful
V = Volatile, = Company is on the Priority Stock List

CALA has only provided Q3 and FY 2013 EPS.
2014 quarters may not sum to our annual EPS estimate due to differences in shares outstanding and rounding.

Ticker	CALA
Price (11/13/2014)	$9.99
52-Week Range:	$6-12
Shares Outstanding: (MM)	17.9
Market Cap.: (MM)	$178.8
S&P 500:	2,038.96
Avg. Daily Vol.:	110,796
Dividend/Yield:	$0.00/0.0%
LT Debt: (MM)	$0.0
LT Debt/Total Cap.:	0.0%
ROE:	NM
3-5 Yr. Est. Growth Rate:	75.0%
CY 2014 Est. P/EPS-to-Growth:	NM
Last Reporting Date:	11/14/2014 Before Open

Source: Company Data, Wells Fargo Securities, LLC estimates, and Reuters

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Please see page 4 for rating definitions, important disclosures and required analyst certifications
All estimates/forecasts are as of 11/14/14 unless otherwise stated.

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- **ASH meeting abstracts to be highlighted by No. 3429 and identification of a potential biomarker for myeloma patients.** Four preclinical abstracts for CB-893 have been approved for presentation at the meeting (No.s 3429, 3439, 3763, and 4720). No. 3439 describes CB-839's monotherapy profile in MM cell lines, No. 4720 describes synergies for CB-839 with pomalidomide (important due to Calithera's clinical strategy to develop CB-839 with the IMiD), and No. 3763 outlines CB-839's effects in AML (a blood cancer included in the three ongoing Phase I monotherapy studies). Abstract No. 3429 notes that MM cell lines that are resistant to CB-839 have elevated levels of pyruvate carboxylase (PC) whereas CB-839 sensitive cell lines have low levels of PC. Based on immunoblot analysis of 24 MM cell lines, PC protein levels were inversely correlated with response to CB-839. This is an important finding as PC converts pyruvate to oxaloacetate, an important Kreb's cycle intermediate needed for creation of energy and biomass macromolecules, important for cancer cell growth and survival. Calithera is exploring whether PC may serve as a potential biomarker in its Phase I studies.
- **Financials.** Calithera reported GAAP EPS of -$16.85 versus our -$0.28, with the difference being due to our estimated share count; total operating expenses of $5.24MM were in line with our $5.1MM estimate. Cash on hand at September 30 was $34.9MM. We estimate Calithera will end the year with $101MM (including the net $71.7MM raised as part of the IPO), which should be sufficient to fund operations into 2017 for the future Phase I(b) and II combination studies for CB-839 and to advance the pre-clinical arginase inhibitor program.

Exhibit 1. Calithera's Upcoming Milestones Chart

Upcoming Milestone Schedule

Agent	Timing	Event
CB-839	Q4 2014	Elect dose for Phase I(b) combination studies.
	December 5 - 9, 2014	Present data at the ASH Meeting on the novel biomarker (pyruvate carboxylase) for CB-839 in multiple myeloma patients.
	End 2014	Complete enrollment for the three Ph. I monotherapy studies and initiate the Ph. I(b) combination studies for Triple Negative Breast Cancer (with paclitaxel) and multiple myeloma (with Pomalyst/dexamethasone).
	April 18 - 22, 2015	Present initial monotherapy efficacy data at the AACR Meeting (Philadelphia, PA).
	May 29 - June 2, 2015	If not at the AACR Meeting, present the initial Ph. I monotherapy efficacy/safety data at the ASCO Meeting (Chicago, Illinois).
	December 5-9, 2015	Present the Ph. I monotherapy and combination data for the MM/NHL and ALL/AML studies at the ASH Meeting.
	December 8-12, 2015	Present the Ph. I combination data for the TNBC study at the SABCS.
	End 2015	Report the Ph. I monotherapy and combination data for the solid tumor studies.
	End 2015	Complete the Ph. I monotherapy and Ph. I(b) combination studies.
	End 2015/Q1 2016	Meet with FDA (and CHMP/EMA) to discuss Ph. I(a)/(b) data and Ph. II protocols.
	Q2 2016	Initiate the Ph. II randomized studies in TNBC and MM (and possibly other solid tumors including those with rare driver mutations). Both studies to potentially include 100's of patients.
	End 2017/H1 2013	Complete the Ph. II randomized studies in TNBC and MM.
	2018	Initiate Ph. III studies in TNBC and MM.
Arginase Inhibitor	2014/2015	Complete various preclinical toxicology and other studies.
	End 2015/early 2016	Submit the INDA to regulatory agencies.
	H1 2016	Initiate a Ph. I clinical program.

Source: Company reports and Wells Fargo Securities, LLC estimates

Exhibit 2. Calithera's Income Statement

Calithera Biosciences, Inc. Income Statement
Statement of Operations
(In 000's, except per share data. Fiscal year ends December 31)

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	FY 2013A	H1 2014A	Q3 2014A	Q4 2014E	FY 2014E	FY 2015E	FY 2016E	FY 2017E	FY 2018E	FY 2019E	FY 2020E	FY 2021E	FY 2022E	FY 2023E	FY 2024E	FY 2025E
Revenues																
CB-839 U.S. Sales (30% probability)	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$5,432	$45,178	$101,432	$184,152	$279,765
Royalty on ex-U.S. sales of CB-839 (30% probability)	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$2,636	$9,273	$21,729	$39,101
Collaboration revenue on CB-839 (30% probability)	$0	$0	$0	$0	$0	$0	$0	$0	$27,750	$3,750	$23,250	$41,250	$21,750	$3,750	$3,750	$3,750
Total revenues	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$27,750**	**$3,750**	**$23,250**	**$46,682**	**$69,564**	**$114,455**	**$209,631**	**$322,616**
Expenses																
Cost of Goods Sold					$0	$0	$0	$0	$0	$0	$0	$543	$4,518	$10,143	$18,415	$27,977
Research and development	$9,900	$7,501	$3,894	$4,500	$15,895	$23,000	$25,000	$30,000	$35,000	$35,000	$37,500	$35,000	$37,500	$40,000	$40,000	$45,000
General and administrative	$2,478	$2,141	$1,347	$1,500	$4,988	$5,200	$6,000	$6,750	$10,000	$20,000	$25,000	$52,500	$62,500	$70,000	$77,500	$82,500
Total Expenses	**$12,378**	**$9,642**	**$5,241**	**$6,000**	**$20,883**	**$28,200**	**$31,000**	**$36,750**	**$45,000**	**$55,000**	**$62,500**	**$88,043**	**$104,518**	**$120,143**	**$135,915**	**$155,477**
Profit / Loss from Operations	**($12,378)**	**($9,642)**	**($5,241)**	**($6,000)**	**($20,883)**	**($28,200)**	**($31,000)**	**($36,750)**	**($17,250)**	**($51,250)**	**($39,250)**	**($41,361)**	**($34,953)**	**($5,688)**	**$73,716**	**$167,140**
Other income	$1	$2	$2	$4	$8	$68	$44	$797	$1,408	$1,387	$1,045	$1,389	$1,750	$1,654	$1,918	$2,839
Gain on extinguishment of convertible preferred stock	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Net profit (loss) before income tax expense	($12,377)	($9,640)	($5,239)	($5,996)	($20,875)	($28,132)	($30,956)	($35,953)	($15,842)	($49,863)	($38,205)	($39,972)	($33,203)	($4,034)	$75,634	$169,979
Income tax expense	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$18,908	$42,495
Net income / (loss) (GAAP)	**($12,377)**	**($9,640)**	**($5,239)**	**($5,996)**	**($20,875)**	**($28,132)**	**($30,956)**	**($35,953)**	**($15,842)**	**($49,863)**	**($38,205)**	**($39,972)**	**($33,203)**	**($4,034)**	**$56,725**	**$127,484**
EPS (GAAP, diluted)	**($3.03)**	**($1.22)**	**($16.85)**	**($0.33)**	**($2.40)**	**($1.56)**	**($1.71)**	**($1.40)**	**($0.59)**	**($1.85)**	**($1.41)**	**($1.24)**	**($1.03)**	**($0.12)**	**$1.75**	**$3.92**
Shares Outstanding (Basic)	4,083	7,894	311	17,930	8,712	17,993	18,130	25,730	25,830	25,930	26,030	31,130	31,230	31,330	31,430	31,530
Shares Outstanding (Diluted)	4,083	7,894	311	18,952	9,733	19,014	19,152	26,752	26,852	26,952	27,052	32,152	32,252	32,352	32,452	32,552

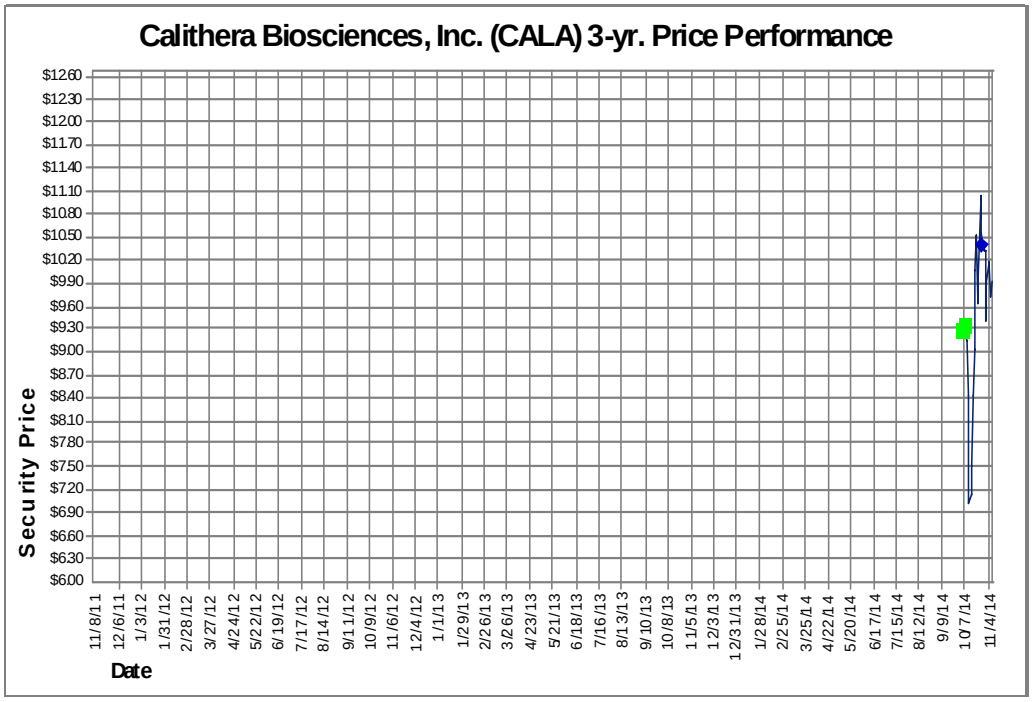
Source: Company reports, Form S-1 dated September 25, 2014, and Wells Fargo Securities, LLC estimates

Note: FY 2012A, H1 2013A, FY 2013A, H1 2014A are all based on information included in the Calithera, Biosciences, Inc. S-1 dated September 25, 2014. Calithera has only provided Q3 and FY 2013 EPS abd H1 and Q3 2014 EPS as of November 11, 2014. All revenues are probability-weighted.

Company Description:

Calithera Biosciences, Inc. (South San Francisco, California) is engaged in the research, development, and commercialization of small molecule drugs directed against tumor metabolism and tumor immunology targets for the treatment of cancers. Calithera's lead program is CB-839, an oral inhibitor of the glutaminase enzyme, and is currently in three Phase I studies and plans to initiate a Ph. II program in triple-negative breast cancer and multiple myeloma in early 2016. Behind CB-839 Calithera has a pre-clinical arginase inhibitor compound which is expected to enter human studies in early 2016.

Required Disclosures



	Date	Publication Price ($)	Rating Code	Val. Rng. Low	Val. Rng. High	Close Price ($)
❐	10/3/2014		IPO at $10.00			
	10/27/2014		Andrews			
◆	10/27/2014	11.04	1	19.00	20.00	10.40

Source: Wells Fargo Securities, LLC estimates and Reuters data

Symbol Key

▼	Rating Downgrade	◆	Initiation, Resumption, Drop or Suspend
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Rating Code Key

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CALA: Key risks include clinical trial failure, a safety signal for CB-839, and financing risk.

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As of: November 14, 2014

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