

Reason for report:

COMPANY UPDATE

ACCELERON PHARMA

Many 2014 Catalysts & Improving Upon ESAs in ESRD Drive Our New \$52PT; Reit OP

• **Bottom Line:** We are rapidly nearing key catalysts for core pipeline programs across most quarters in 2014. As of YE13, we can add Sotatercept potential and data readouts for evaluation in End Stage Renal Disease (ESRD) hemodialysis patients experiencing bone mineral density and vascular calcification abnormalities. Future upside could also be further driven by potential combo with Sorafenib for Hepatocellular Carcinoma (HCC). Specifically, we anticipate: 1) in 1Q14, Phase II dose escalation 2nd-line Renal Cell Carcinoma (RCC) Axitinib combo data; 2) in 2Q14 (EHA), top-line Phase II Sotatercept/ACE-536 data in both MDS and β -Thalassemia and Phase II Part-1 ESRD data; 3) in 4Q14 (ASH), full Phase II Sotatercept/ACE-536 data in both MDS and β -Thal. and likely potential Phase II Dalantercept-Sorafenib combo HCC data. As a result, we are adding heavily risk-adjusted revenue potential in ESRD patient subsets to our model, which drives our new \$52 price target (up from \$35) and we reiterate our Outperform rating (OP).

• **Sotatercept potential in ESRD Hemodialysis subsets now adds to previous core program potential and 2014 data readouts.** This recently initiated trial aims to capitalize on Sotatercept's positive impact on bones by assessing potential benefit to bone mineral density and decreased vascular calcification, which is observed in ESRD patients on hemodialysis. This trial is not attempting to only show a Hg increase to treat ESRD associated anemia, which can be managed with Erythrocyte Stimulating Agents (ESAs). While ~90% of all hemodialysis ESRD patients (total >600K in US) experience concurrent bone mineral density problems (leading to 4x increase in potential fractures/bone disease), for conservatism we assume Sotatercept might only benefit a small minority. Given a sliding scale of price sensitivity in the ESRD market, in our new model we assume only marginal Sotatercept premium over ESAs in only a minor subset of patients, with potential future proven benefit in bone mineral density and vascular calcification leading to significant revenue upside. While the randomized ESA active control portion of this trial (Part-2) is likely by 1H15, the PK and safety (Part-1) read will occur near term in 1H14. Until further data readouts in ESRD, we are currently modeling a heavily discounted high teens probability of success.

• **A Dalantercept-Sorafenib combo HCC trial with potential late 2H14 preliminary data could represent further 2014 upside.** Near term and building upon the experience in RCC, XLRN plans to initiate this 1st-line combo trial in HCC. Sorafenib was approved based on a second interim analysis showing a statistically significant 2.8-month overall survival (OS) benefit (10.7 mos.) vs. placebo (7.9 mos.) and 2.7-month Time to Progression benefit (5.5 mos.) vs. placebo (2.8 mos.). Preliminary response data from the Dalancercept combo trial will be available by YE14 with maturing PFS data in 2015. We believe HCC could provide a further large market opportunity currently not in our model.

Key Stats:

(NASDAQ:XLRN)

S&P 600 Health Care Index:	1,289.05
Price:	\$41.26
Price Target:	\$52.00
Methodology:	DCF analysis
52 Week High:	\$43.70
52 Week Low:	\$15.00
Shares Outstanding (mil):	2.4
Market Capitalization (mil):	\$99.0
Book Value/Share:	\$16.68
Cash Per Share:	\$16.29
Dividend (ann):	\$0.00
Dividend Yield:	0.0%



Dec Yr	1Q	2Q	3Q	4Q	FY Rev	1Q	2Q	3Q	4Q	FY EPS	P/E
2012A	--	--	--	--	\$15.3	--	--	--	--	(\$1.44)	NM
2013E	\$15.0A	\$26.4A	\$4.3A	\$18.0	\$63.7	\$0.13A	\$0.64A	(\$0.66)A	\$0.13	\$0.25	NM
2014E	--	--	--	--	\$40.0	--	--	--	--	(\$0.49)	NM

Source: Company Information and Leerink Partners LLC Research
Revenue in MM, GAAP EPS presented

INVESTMENT THESIS

We rate XLRN Outperform. We believe XLRN shares are poised to appreciate near/longer term driven by progress with CELG-partnered compounds Sotatercept/ACE-536 and proprietary Dalantercept (ACE-041). XLRN has multiple significant data read-out catalysts during almost every quarter until YE14. Pivotal Catalysts through 2014: 1) Preliminary Dalantercept Phase II RCC data in 1Q14; 2) Top-line Sotatercept and ACE-536 Phase II MDS and β -Thal. (4 trials) data at EHA in 2Q14; 3) Final Sotatercept and ACE-536 Phase II MDS and β -Thal. (4 trials) data at ASH in 4Q14; 4) Initiate pivotal MDS and/or β -Thal. trials by YE14. MEDACorp KOLs are very bullish and encouraged by emerging pipeline data and science. We assume probability of success in the low 30% for Sotatercept/ACE-536 in MDS, 40% for β -Thal., 20% in end-stage renal disease (ESRD) patients on hemodialysis, and low 30% for Dalantercept in 2nd-line RCC.

Change in Estimates

Our valuation is increased from \$35 to \$52 by including probability adjusted royalty revenue from ESRD patients on hemodialysis at 20%. XLRN has initiated a Phase II study in December 2013 to assess safety and efficacy of sotatercept in treating anemia and its potential to control conditions like mineral and bone disorder associated with chronic kidney disease. Our 2014 EPS changed from (\$0.52) to (\$0.49).

Milestones

Product	Partner	Indication	Phase	Timing	Milestone			
ACE-536	CELG	MDS + β -Thal.	Ph. II	1Q14	Initiate Phase II Expansion Cohort for β -Thal.			
				2Q14	Phase II dose escalation data for MDS and β -Thal. at EHA-2014			
				4Q14	Final Phase II in MDS and β -Thal. data			
				YE14	Initiate Phase III trial for MDS and/or β -Thal.			
				2018	Approval and launch			
Sotatercept (ACE-011)				CELG	ESRD	Ph. II	1Q14	Initiate Phase II Expansion Cohort for β -Thal.
							2Q14	Phase II dose escalation MDS + β -Thal. data at EHA-2014
							4Q14	Final Phase II in MDS + β -Thal. data
							2018	Approval and launch
							YE14	Initiate Phase III trial for MDS and/or β -Thal.
1H14	Part-1 top-line data							
1H15	Part-2 top-line data							
Dalantercept (ACE-041)	Proprietary	Oncology	Ph. II				1Q14	Dose escalation Phase II RCC combo data trial (full at ASCO-2014) GOG Ovarain Cancer single agent trial Go-No-Go to Part-2 of trial
				1Q14	Initiate Phase II (Part-2, N=112) RCC randomized trial (PFS endpoint)			
				1H14	Initiate Phase II combo (sorafenib) trial in HCC			
				YE14	Preliminary Phase II combo (sorafenib) data in HCC			
				2014	Phase II data in SCCHN			
				2018	Approval and launch in RCC			
				New TGF- β Candidates	Muscle	PC	2014	Advance Muscle Loss candidate into clinic (ACE-083)
Fibrosis		PC	2015	Advance Fibrosis (i.e., PAH) candidate into clinic				

Source: Company reports, Leerink Partners estimates.

Phase II Sotatercept Intravenous (IV)/Subcutaneous (SC) End-Stage Kidney Disease Patients on Hemodialysis	
Purpose:	Determine optimal administration route, dose level, and safety of IV or SC sotatercept for maintaining hemoglobin levels in ESRD hemodialysis subjects
# Pts:	Part-1: N=60 Part-2: N=230 19 international sites (as of 1.8.14)
Design:	Interventional, 2x Part, randomized, open label, treatment trial
Trial Arms:	<p>Note: Patients in both parts of study must first be on stable dose of ESA to maintain Hg levels and switched to treatment with sotatercept after an ESA treatment free period of ~5 days</p> <p>Part-1: Staggered dose group escalation</p> <ul style="list-style-type: none"> Arm-1 (IV): ACE-011 IV starting at 0.1mg/kg (gp-1), then 0.2mg/kg (gp-2) and 0.3mg/kg (gp-3) every 14 days for total of 8 doses and followed for 4 months after last dose Arm-2 (SC): ACE-011 SC starting at 0.13mg/kg (gp-1), then 0.26mg/kg (gp-2), and 0.4mg/kg (gp-3) every 14 days for total of 8 doses and followed for 4 months after last dose <p>Part-2: Parallel group, randomized vs. active control (ESA)</p>
Primary Endpoint:	<p>Part-1:</p> <ul style="list-style-type: none"> Pharmacokinetics: C-max, T-max, AUC 28days [Time Frame: 28 days] and T-1/2,z [211 days] Adverse Events: [Time Frame: 211 days] [Designated as safety issue], TEAEs <p>Part-2:</p> <ul style="list-style-type: none"> Change in mean hemoglobin concentration from baseline Ability of sotatercept to maintain hemoglobin levels within target range after switching from ESA to sotatercept
Secondary Endpoints:	<ul style="list-style-type: none"> Efficacy [Time Frame: 113 days] Change in mean hemoglobin (Hg) concentration between baseline and day-113 Bone Turnover biomarkers for remodeling and mineral metabolism for 211 days Change in serum bone biomarker concentrations between baseline and end of study (day-211)
Start:	October-2013
Data:	October-2015
Status:	Recruiting (as of 1.8.14)
Sponsors:	CELG
Clin.Trial.ID:	NCT01999582, ACE-011-REN-002, 2012-003788-23

Source: Company reports, Leerink Partners estimates.

VALUATION

We arrive at a new 12-month price target of XLRN shares of \$52 a share (previously \$35) based on the inclusion of probability adjusted royalty revenue from ESRD patients on hemodialysis at 20%. Our valuation is based on a discounted cash flow analysis. XLRN shares are poised to appreciate near/longer term driven by progress with CELG-partnered compounds Sotatercept/ACE-536 and proprietary Dalantercept (ACE-041). We apply a discount rate of 10% and a terminal growth rate of 1%, which translates to an 11x terminal multiple, which we believe is comparable to biotechnology companies in a similar development stage.

RISKS TO VALUATION

An investment in XLRN is fundamentally a high-risk, high-reward investment, in our opinion. XLRN may face significant clinical, regulatory, and commercial risks for pipeline products. Most important is clinical risk for Phase II Sotatercept and ACE-536 trials in MDS and β -Thal. as well as Dalantercept/Axitinib in RCC. There is also competitive risk from emerging MDS, β -Thal. and RCC therapies. Finally, XLRN may face financing risk beyond 1H15.

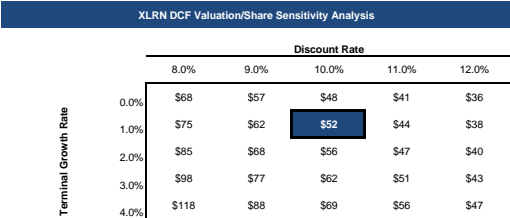
	2012A	1Q13A	2Q13A	3Q13A	4Q13E	2013E	2014E	XLRN P&L (\$000s, except per share data)												2015E	2016E	2017E	2018E	2019E	2020E	2021E	2022E	2023E	2024E	2025E	2026E
Revenues																															
Sotatercept/ACE-536 WW Revenue in MDS to CELG																															
Probability of Success																															
Risk Adjusted Sotatercept/ACE-536 WW Revenue																															
Risk Adjusted Sotatercept/ACE-536 WW Royalties in MDS																															
Sotatercept/ACE-536 WW Revenue in NTD β-Thal. to CELG																															
Probability of Success																															
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Dalantcept WW Revenue in 2nd-line RCC																															
Probability of Success																															
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Sotatercept US Revenue in ESRD Patients on Hemodialysis																															
Probability of Success																															
Risk Adjusted Sotatercept US Revenue in ESRD Patients on Hemodialysis																															
Risk Adjusted Sotatercept US Royalties in ESRD Patients on Hemodialysis																															
Collaboration Revenue																															
License and milestone (Risk Adjusted beyond approval)																															
Cost-Sharing, Net																															
Contract Manufacturing																															
Collaboration Revenue																															
Total Revenue																															
Costs and Expenses																															
Probability Adjusted Dalantcept COGS																															
Research and Development																															
SG&A (Risk Adjusted from Time of Dalantcept Launch)																															
Total Costs and Expenses																															
Operating Income (EBIT)																															
Y/Y growth																															
Other Income (Expenses)																															
Interest Income																															
Interest Expense																															
Income Before Taxes																															
Provision for Taxes																															
Tax Rate																															
Net Income																															
Change in fair value of warrants																															
EPS (LPS) Basic																															
Basic Shares (000)																															

Source: Leerink Swann estimates and company reports.
Note: Basic and Diluted shares outstanding are pro forma for IPO priced 9/18/13.
NTD=non-transfusion dependent.

DCF Calculation

Discount rate	10%
Terminal Growth Rate	1%
Valuation (\$M)	\$1,649
Valuation / Share	\$52

Source: Leerink Swann estimates.



Source: Leerink Swann estimates.

Disclosures Appendix

Analyst Certification

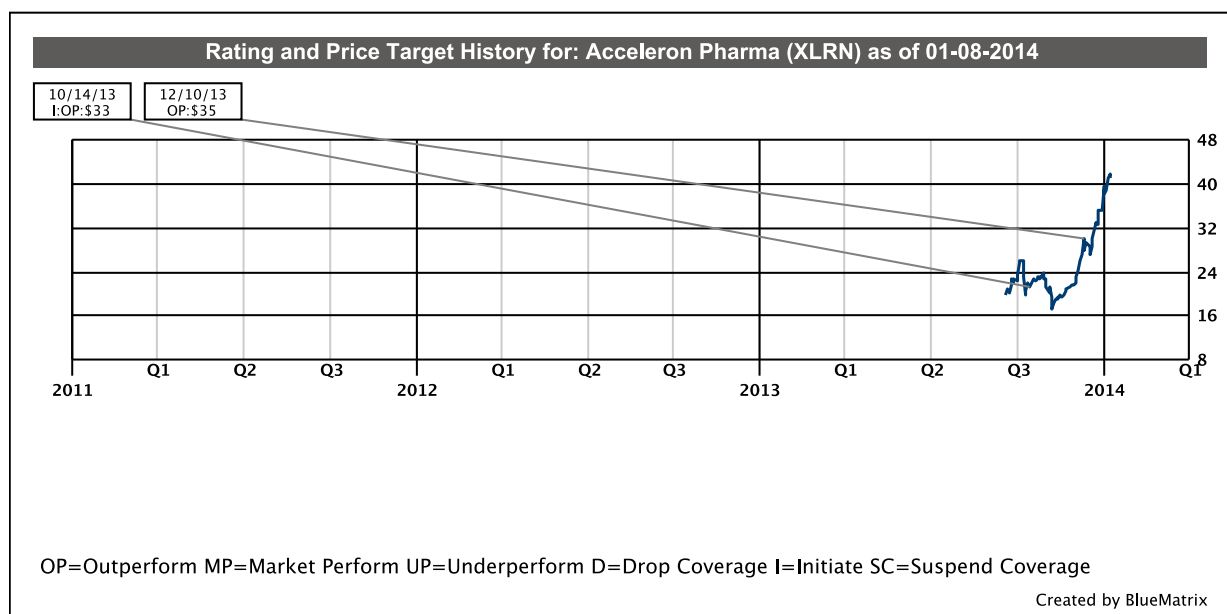
I, Marko Kozul, M.D., certify that the views expressed in this report accurately reflect my views and that no part of my compensation was, is, or will be directly related to the specific recommendation or views contained in this report.

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Risks to Valuation

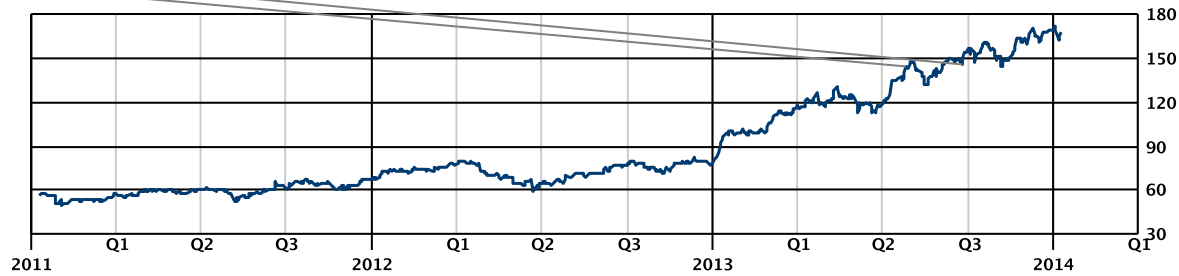
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Rating and Price Target History for: Celgene, Inc. (CELG) as of 01-08-2014

07/26/13
OP:\$165

09/25/13
OP:\$177



Leerink Swann initiated coverage of CELG with an Outperform rating on February 7, 2003. On June 11, 2013, Leerink Swann began a transition to specific price targets for the stocks under its coverage, replacing valuation ranges.

OP=Outperform MP=Market Perform UP=Underperform D=Drop Coverage I=Initiate SC=Suspend Coverage

Created by BlueMatrix

Distribution of Ratings/Investment Banking Services (IB) as of 09/30/13				
Rating	Count	Percent	IB Serv./Past 12 Mos.	
			Count	Percent
BUY [OP]	111	64.90	27	24.00
HOLD [MP]	60	35.10	0	0.00
SELL [UP]	0	0.00	0	0.00

Explanation of Ratings

Outperform (Buy): We expect this stock to outperform its benchmark over the next 12 months.

Market Perform (Hold/Neutral): We expect this stock to perform in line with its benchmark over the next 12 months.

Underperform (Sell): We expect this stock to underperform its benchmark over the next 12 months. The degree of outperformance or underperformance required to warrant an Outperform or an Underperform rating should be commensurate with the risk profile of the company.

For the purposes of these definitions the relevant benchmark will be the S&P 600® Health Care Index for issuers with a market capitalization of less than \$2 billion and the S&P 500® Health Care Index for issuers with a market capitalization over \$2 billion.

Important Disclosures

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In the past 12 months, the Firm has received compensation for providing investment banking services to Accelaron Pharma .

Leerink Partners LLC makes a market in Accelaron Pharma and Celgene, Inc.

In the past 12 months, an affiliate of the Firm, Leerink Swann Consulting LLC, has received compensation for providing non-securities services to: Celgene, Inc.

Leerink Partners LLC has acted as the manager for a public offering of Accelaron Pharma in the past 12 months.

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