



Aegerion Pharmaceuticals

AEGR: NASDAQ: US\$18.94

BUY

Ritu Baral

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Target: US\$24.00

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COMPANY STATISTICS:

Market Cap (M): US\$334.12 52-week Range: US\$9.00 - 25.92

FARNINGS SHMMARY

LAMMINGS	JUININA	×1.		
FYE Dec		2010A	2011E	2012E
Revenue:		0.0	0.0	195.1
EPS:		(5.07)	(1.89)	6.94
Revenue:	Q1	-	0.0A	-
	Q2	0.0	0.0	-
	Q3	0.0	0.0	-
	Q4	0.0	0.0	-
Total		0.0	0.0	195.1
EPS:	Q1	-	(0.39)A	-
	Q2	(2.77)	(0.45)	-
	Q3	(3.61)	(0.59)	-
	Q4	(0.92)	(0.45)	-
Total		(5.07)	(1.89)	6.94

SHARE PRICE PERFORMANCE:



COMPANY DESCRIPTION:

Aegerion Pharmaceuticals is an emerging biopharmaceutical company focused on novel therapeutics to treat severe but rare genetic lipid disorders. The company's lead drug, lomitapide, is currently in pivotal development for homozygous familial hypercholesterolemia, characterized by very high LDL levels that do not respond well to statin therapy.

All amounts in US\$ unless otherwise noted.

Life Sciences -- Biotechnology

FULL LOMITAPIDE PHASE 3 DATA SUPPORTS BEST-IN-CLASS STATUS

Investment recommendation

Reiterate BUY, \$24 target on lomitapide'a potential as best-in class HoFH drug. Lomitapide is AEGR's Phase 3 MTP-1 inhibitor for homozygous familial hypercholesterolemia (HoFH), a rare genetic disease causing very high LDLs. We think lomitapide may become the best-in-class HoFH drug vs. ISIS/SNY's Phase 3 mipomersen and AEGR will submit the lomitapide NDA and MAA in Q4/11. Our \$24 target is based on a pNPV analysis.

Investment highlights

- 56-week data closely resembles positive interim 26-week data released last fall. LDL lowering efficacy was maintained at 44% at week 56 vs. 50% at week 26. Mipomersen's placebo-controlled Phase 3 trial showed 25% wk 26 LDL reduction.
- Incrementally positive safety: less liver fat from 26 weeks, tolerability maintained. Hepatic fat, lomitapide's main safety concern, was 7.3% at 56 weeks vs. 9.0% at 26 weeks. There were no new instances of abnormal liver enzyme elevations. No patients have discontinued treatment due to liver toxicity.
- Data supports our belief lomitapide will be best in class for HoFH. We think lomitapide will be approved for HoFH in the US and Europe in H2/12. We think lomitapide's sole HoFH competitor, ISIS/SNY's Phase 3 mipomersen, has inferior tolerability and LDL lowering than lomitapide.

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56-WEEK LOMITAPIDE DATA SHOW MAINTAINED EFFICACY, TOLERABILITY

56-week safety data show maintained strong LDL lowering, likely superior to mipomersen. Phase 3 lomitapide data showed 50% and 44% reduction in LDL-C at week 26 and 56, respectively. Efficacy data from mipomersen's Phase 3 trial in HoFH showed 25% reduction at week 26 (Figure 1). We note the slight difference in ITT week 26 LDL reduction (40.1%) from previously reported levels (45%) was due to quality control adjustments. The former reduction was based off of last treatment measure carried forward, while the current measure is based on the more widely accepted last observation carried forward. Aegerion noted the time difference between last observation and last treatment went up to six weeks in some patients. We do not see the small drop in efficacy as meaningful. Lipid experts with lomitapide treatment experience noted to us they think this fall-off is likely due to patient dietary non-compliance rather than any resistance patients are developing to the drug.

Figure 1: Lomitapide vs. mipomersen (ISIS) Phase 3 LDL-C reduction in HoFH

	n	LDL-C (mean % change from baseline)
Lomitapide ITT @ week 26	29	-40.1%
Lomitapide Completer Analysis @ week 26	23	-50.2%
Lomitapide @ week 56	23	-44.0%
Mipomersen ITT @ week 26	34	-24.7%

Source: Company reports

56-week lomitapide safety data show excellent tolerability, we think better than mipomersen. Mild-to-moderate GI adverse events have been the most commonly reported adverse events in the lomitapide Phase 3 trial (Figure 2). Aegerion has indicated most incidences of problematic GI distress occur in the titration phase of treatment. As a result, we do not think a meaningful number (if any) of serious GI adverse events occurred during the second half of the trial. Lipid experts we have spoken with indicate GI side effects become less of an issue over time with lomitapide treatment as patients learn what foods to avoid. For mipomersen, which is delivered via subcutaneous injection, injection site reactions have been the most commonly reported adverse event, with rates of 70+% in some trials. While these injection site reactions are not life threatening, lipid experts with mipomersen experience say they are severe enough to cause patients to discontinue treatment (Figure 3). Investigators we have spoken to with experience with both drugs unanimously indicate their belief lomitapide-associated diarrhea has been easier to tolerate than mipomersen-associated injection site reactions.



Hepatic fat declined slightly with increased lomitapide treatment duration. Liver fat did not get worse and slightly improved from 9.0% at week 26 to 7.3% at week 56. Lipid experts we have spoken to believe this is a result of physiological accommodation of MTP-1 inhibition in the liver. The exact mechanism of this accommodation is not well understood, though experts suggest it may be related to differential expression of the MTP-1 transporter due to feedback upregulation. We do not have liver fat data from mipomersen's Phase 3 in HoFH.

We view the final liver fat levels as very encouraging and clinically benign. HoFH experts have indicated they would consider liver fat levels of ~15% as the threshold they would regard as potentially problematic. Even the most conservative experts acknowledge hepatic fat levels in the single digits would be largely benign if seen in the absence of liver enzyme changes. As mentioned earlier, no patients in the lomitapide Phase 3 study have discontinued due to changes in liver enzyme levels.

Figure 2: Lomitapide Phase 3 in HoFH, adverse events and liver fat.

	Number	Percentage
Enrolled	29	100%
Completers	23	79%
Discontinued due to GI adverse events	3	10%
Withdrawn consent	3	10%
Discontinued due to liver function test elevations	0	0%
With ALT elevations > 5x ULN	4	14%

Hepatic Fat (mean %)	Week 26	Week 56
n	22	21
Baseline	1.0%	1.2%
End of measurement period	9.0%	7.3%

Source: Company reports

Figure 3: Mipomersen (ISIS) Phase 3 in HoFH, adverse events (liver fat not reported).

	Mipome	rsen	<u>Placebo</u>		
	Number	%	Number	%	
Enrolled	34	100%	17	100%	
Completers	28	82%	17	100%	
Injection site reaction	26	76%	4	24%	
Discontinued due to elevations in liver transaminases	1	3%	0	0%	
With ALT elevations > 3x ULN	4	12%	0	0%	

Source: Company reports



31 May 2011

Figure 4: AEGR expected upcoming catalysts

Expected date	Drug/Program	Item	Impact
Q3/11	Lomitapide in HoFH	78-week safety data	+
Q4/11	Lomitapide in HoFH	NDA filing	+
H1/12	Lomitapide in HoFH	Advisory committee meeting	++

Source: Company reports, Canaccord Genuity estimates

Figure 5: AEGR pNPV

Drug name	Indication	Status	Launch	Success	Sales (US\$m)	Royalty	Profitability	NPV (US\$)
lomitapide	HoFH - genotype diagnosis	Phase 3	2012	70%	89.0	90%	75%	6.72
lomitapide	HoFH - phenotype diagnosis	Phase 3	2012	60%	187.3	90%	75%	12.12
lomitapide	HoFH - functional diagnosis	Phase 3	2012	33%	140.5	90%	75%	5.00
•	v						Total	23.85

Source: Canaccord Genuity estimates

Figure 6: AEGR P&L

	2010A	Q1/11A	Q2/11E	Q3/11E	Q4/11E	2011E	2012E	2013E
nitapide - US	_	_	_	_	_	-	98.5	169.7
nitapide - EU/SA	-	_	_	_	_	-	96.6	164.8
tal product revenues	-	-	-	-	-	-	195.1	334.5
venue from royalties and royalty rights	-	_	_	_	_	-	-	3.0
venues from license agreements	_	_	_	-	-	_	_	0.5
tal revenues	-	-	-	-	-	-	195.1	338.0
st of goods sold	-	_	_	_	-	-	19.5	33.4
oss Profit	-	-	-	-	-	-	175.6	304.5
D expense	7.6	3.3	5.0	5.0	5.0	18.3	20.0	20.0
&A expense	5.9	3.5	3.0	3.5	4.0	14.0	20.0	20.0
ner operating expense	-	_	_	_	_	-	-	_
tal operating expense	13.6	6.8	8.0	8.5	9.0	32.3	40.0	40.0
erating income	(13.6)	(6.8)	(8.0)	(8.5)	(9.0)	(32.3)	135.6	264.5
erest expense)	(2.4)	(0.1)	(0.3)	(0.4)	(0.6)	(1.4)	(1.6)	(1.6)
erest income	0.1	0.1	0.0	0.0	0.1	0.2	0.2	0.2
ange in fair value warrant liability	(0.4)	-	0.2	(1.8)	1.1	(0.6)	-	-
ner non-operating income (expense)	0.2	-	0.0	0.0	0.2	0.3	-	-
e-tax income	(16.0)	(6.8)	(8.1)	(10.7)	(8.2)	(33.9)	134.2	263.1
ome tax expense (benefit)	(1.8)	_	_	_	_	_	1.8	6.3
cretion of Dividends	8.8	-	-	-	-	-	-	-
tincome	(23.0)	(6.8)	(8.1)	(10.7)	(8.2)	(33.9)	132.4	256.8
sic EPS	(5.07)	(0.39)	(0.45)	(0.59)	(0.45)	(1.89)	6.94	12.82
uted EPS	(5.07)	(0.39)	(0.45)	(0.59)	(0.45)	(1.89)	6.94	12.82
sic shares outstanding	4.5	17.6	17.8	18.0	18.2	17.9	19.1	20.0 20.0
sic snares outstanding uted shares outstanding	4.5 4.5	17.6 17.6	17.8 17.8	18.0 18.0	18.2 18.2	17.9 17.9	19.1 19.1	

Source: Company reports and Canaccord Genuity estimates



Investment risks

Development risk -- Previous clinical trials have shown problematic safety/tolerability

Previous higher dose non-titration lomitapide trials have shown rates of liver fat and liver enzyme elevations that were deemed unacceptable by clinicians for treatment of a broad patient population with moderately elevated LDL levels. Additionally, GI tolerability in these trials was very poor. Although safety and tolerability data to date is significantly better due to lower dose and titration, some patients still experience side effects that could reach problematic levels, albeit we think the data thus far suggests the drug, at its current dose and treatment schedule, will be a safe and relatively well-tolerated therapy.

Regulatory risk -- Despite unmet need, a single, open-label, uncontrolled Phase 3 trial may not be sufficient to secure FDA or European approval

The FDA normally requires two randomized placebo-controlled pivotal trials for drug approval. Aegerion plans to submit the lomitapide NDA with data from a single uncontrolled open-label Phase 3 trial with a small number of patients. Also, the company does not have a Special Protocol Assessment (SPA) from the FDA, although it has had extensive discussions with the agency as part of the SPA process.

Commercial risk -- Lomitapide may not have as large a market as estimated, since current market assumptions are relatively new and as yet unproven

While there is little dispute on the number of HoFH patients with definitive genotypic diagnosis (600-1,000 patients worldwide), there is controversy over the additional number of HoFH patients whose exact genetic mutations have not yet been identified. Lomitapide may not be approved or reimbursed for patients with LDL levels characteristic of HoFH but without genotypic, cell culture or familial history diagnosis. Furthermore, Aegerion may face pricing pressure on lomitapide's orphan pricing. As such, the exact potential patient population and market size for lomitapide is uncertain.

Competitive risk -- Lomitapide may compete with Isis' mipomersen, which is partnered with Genzyme, a large-cap biotechnology with an established orphan business unit.

We believe that lomitapide may be approved for HoFH around the same time as Isis Pharmaceuticals' mipomersen, partnered with Genzyme. We note that Genzyme has pioneered the orphan disease business model and has considerable experience at launching and commercializing orphan drugs. However, we think that lomitapide still has a very good chance at becoming the gold standard HoFH treatment based on its superior efficacy, safety and ease of use, as well as its (at worst) comparable tolerability.



APPENDIX: IMPORTANT DISCLOSURES

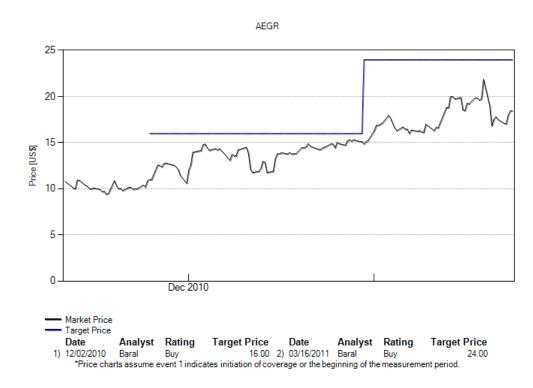
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Price Chart:*



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Speculative Buy	67	8.5%	62.7%
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	785	100.0%	

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Aegerion Pharmaceuticals

1A, 2, 3, 5, 7

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