Zacks Small-Cap Research

March 12, 2012
Jason Napodano, CFA
312-265-9421
jnapodano@zacks.com

scr.zacks.com
111 North Canal Street, Chicago, IL 60606

Aastrom Biosciences, Inc. (ASTM-NASDAQ)

ASTM: Financing Complete, REVIVE Underway…Maintain Outperform Rating.

Current Recommendation	**Outperform**
Prior Recommendation	Neutral
Date of Last Change	11/08/2010
Current Price (03/12/12)	$2.04
Target Price	**$6.00**

UPDATE

Now that Aastrom has completed its financing and the REVIVE trial is underway, we see little risks over the near-term. Over the next twelve months we expect continued updates on the enrollment in REVIVE, data to be published in the Journal of Molecular Therapy from RESTORE-CLI, twelve month data from the DCM catheter program, and what management has referred to as "ground-breaking preclinical studies" preclinical data on ixmyelocel-T to be presented at the ATVB meeting in April 2012.

We remain big fans of the company. Our price target is $6 per share based on DCF. At today's price, we see a very compelling investment story for the long-term.

SUMMARY DATA

52-Week High	**$3.27**
52-Week Low	**$1.78**
One-Year Return (%)	**-11.69**
Beta	**0.07**
Average Daily Volume (sh)	**388,206**
Shares Outstanding (mil)	**39**
Market Capitalization ($mil)	**$79**
Short Interest Ratio (days)	**14.89**
Institutional Ownership (%)	**7**
Insider Ownership (%)	**2**
Annual Cash Dividend	**$0.00**
Dividend Yield (%)	**0.00**
5-Yr. Historical Growth Rates	
Sales (%)	**N/A**
Earnings Per Share (%)	**N/A**
Dividend (%)	**N/A**
P/E using TTM EPS	**N/A**
P/E using 2012 Estimate	**N/A**
P/E using 2013 Estimate	**N/A**

Risk Level	**Above Average**
Type of Stock	**Small-Growth**
Industry	**Med-Biomed/Gene**

ZACKS ESTIMATES

Revenue
(In millions of $)

	Q1 (Mar)	Q2 (Jun)	Q3 (Sep)	Q4 (Dec)	Year (Dec)
2011	0 A	0 A	0 A	0 A	0 A
2012	0 E	0 E	0 E	0 E	0 E
2013					0 E
2014					0 E

Earnings per Share
(EPS is operating earnings before non-recurring items)

	Q1 (Mar)	Q2 (Jun)	Q3 (Sep)	Q4 (Dec)	Year (Dec)
2011	-$0.13 A	-$0.26 A	-$0.05 A	-$0.07 A	-$0.51 A
2012	-$0.23 E	-$0.24 E	-$0.25 E	-$0.27 E	-$1.00 E
2013					-$1.13 E
2014					-$1.06 E

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WHAT'S NEW

Recent Financials

On March 12, 2012, Aastrom Bio reported financial results for the fourth quarter and full year ended December 31, 2011. Aastrom reported no revenues in 2011. As a development-stage company, this was expected and in-line with our model. The company reported a net loss in the fourth quarter of $2.8 million, or 7 cents per share. Loss was lessened by a re-valuation in the outstanding warrant liability of $5.0 million in the quarter. For the full year 2011, the company reported a net loss of $19.7 million, or 51 per share. Both were essentially in-line with expectations. Aastrom reported cash and cash equivalents at the end of December 2011 of $5.5 million.

...Financing Complete…

On March 9, 2012, Aastrom entered into a securities purchase agreement with Eastern Capital Limited (ECL) to sell 12,308 shares of Series B1 (non-voting) Preferred Stock at a price of $3,250 per share, for gross proceeds of approximately $40.0 million. Aastrom expects to net $38+ million after fees.

Terms of the financing were quite shareholder-friendly. The Series B1 Preferred Stock will pay an annual dividend of 11.5%, paid-in-kind, for a period of five years. At the end of the five years, the Preferred Stock can be converted at the option of the holder, into common stock at a conversion ratio of 1-for-1000 at $3.25 per share. We note that ECL cannot covert into common stock at an ownership greater than 19.9%. ECL has no voting rights with the Preferred Stock, asked for no seats on the company's Board, and received no warrants on common stock.

We model that Aastrom will exit the first quarter 2012 with an estimated $37 million in cash and investments. The company does have an At-The-Market (ATM) financing currently active for up to $20 million in aggregate offerings, and we expect that management will be opportunistically tapping the ATM over the next several months. We find the current cash position as sufficient to fund operations into the second half of 2013.

Phase 3 REVIVE Initiated

On February 29, 2012, Aastrom Bio announced it had begun patient enrollment in its phase 3 clinical trial, REVIVE, designed to assess the efficacy and safety of ixmyelocel-T in the treatment of patients with critical limb ischemia (CLI). REVIVE will be conducted at 80 sites in the U.S. and will include 594 CLI patients who have no option for revascularization, and also have existing tissue loss due to ischemia. REVIVE will be the largest randomized, double-blind, placebo-controlled, multicenter study ever conducted in patients with CLI, larger than Sanofi's failed phase 3 TAMARIS study conducted in 525 patients.

According to the NIH website, 22 clinical sites were up and enrolling on launch. In a previous report, we noted that Aastrom management was waiting to initiating the trial until roughly 25 treatment centers were online. The protocol calls for a centralized review of patients for inclusion / exclusion from enrollment from an independent steering committee, along with specific guidance-based measures for wound outcomes. Waiting until 20+ treatment centers were ready to begin enrollment improves continuity on these centralized procedures. It also helps assure a steady flow of product manufacturing at Aastrom's facility in Ann Arbor.

Patients will be followed for a total of 18 months, including 12 months from randomization for efficacy and an additional six months for safety. The primary endpoint of REVIVE is amputation-free survival at 12 months (AFS-12). The trial is being conducted under a Special Protocol Assessment (SPA) from the U.S. FDA. REVIVE has also been granted Fast Track designation for CLI. Secondary endpoints include adverse events at 18 months, wound closure at 12 months, and incidence of major adverse cardiac events (MACE), including myocardial infarction, chest pain hospitalization, or stroke.

...Statistical Powering Is Key...

The trial is 90% powered to show superiority of ixmyelocel-T over the control (no cells). Management used an assumed treatment effect of 36% to design the trial (12% numerical separation). We remind investors that in the phase 2b RESTORE program, ixmyelocel-T showed a 61% risk reduction vs. the control. For the powering assumptions for REVIVE, management used an event rate for the control group of 34.5%, while expecting that ixmyelocel-T will come in around 22.2%.

Key Phase 3 Statistical Assumptions

Pivotal Phase 3 No-option protocol key statistical assumptions

- Ixmyelocel-T AFS event rate – 22.2%
- Placebo/control AFS event rate – 34.5%
- Assumed treatment effect – 36%

	Amputation and Death Event Rate – RESTORE-CLI*			
Treatment Group	**Interim #1**	**Interim #2**	**Final Analysis**	**Wounds at BL**
Ixmyelocel-T	22%	25%	25%	21%
Control	50%	29%	33%	44%

We think ixmyelocel-T works. Therefore, the biggest risk we see with REVIVE is control group doing better than management's assumption, which was based on the TAMARIS and RESTORE-CLI studies. We do note, however, that during Aastrom's RESTORE-CLI program, at the company's second interim update, the control group event rate (29%) was trending below what was seen after the first interim update (50%). This, essentially, worked itself out by the end of the trial, where the event rate was 33% for the control. It is also the reason why management has instituted a strict entry criteria looking for patients with confirmed tissue loss - a true "no option" population.

We note that REVIVE has a blinded interim update after the first 300 patients have been enrolled. Management can add patients to the trial based if the overall blinded data is showing an event rate lower than expectations. An overall event rate lower than expect could mean the control is doing better, the treatment group is doing better, or both are doing better than the powering assumptions. We like the fact that management has baked in this blinded look after 300 patients; it provides the ability to enhance the power of REVIVE if necessary.

We also note at the data safety monitoring board (DSMB) will be monitoring the trial with unblinded data. The DSMB can stop the trial at any time for safety or efficacy reasons. Efficacy reasons can include futility, or clear statistical separation prior to enrolling the 594 patients.

We expect that REVIVE will take 18 to 24 months to complete. We estimate the cost at around $30 million ($45-50k per patient). We are expecting data around the middle of 2014. This should put Aastrom in position to file the New Drug Application (NDA) by the end of 2014, putting FDA review of ixmyelocel-T for CLI around the middle of 2015.

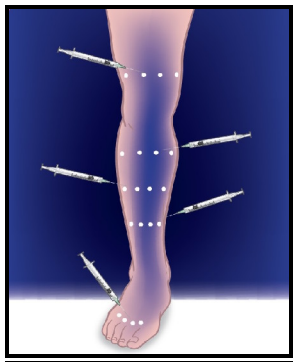
…Previous Data Supports Our Optimism…

In November 2011, Aastrom reported the final analysis from the phase 2b RESTORE-CLI trial. The RESTORE-CLI clinical trial assessed the safety and ability of ixmyelocel-T, Aastrom's expanded, bone marrow-derived cellular therapy, to restore damaged tissue in a lower extremity affected by critical limb ischemia (CLI). The results include the final analysis from all 86 randomized patients.

Of the 86 patients enrolled, 77 underwent the bone marrow aspiration procedure and 72 received treatment injections, 48 ixmyelocel-T and 24 placebo. Patient characteristics where as follows:

- ✓ Age 18-90
- ✓ Diagnosed with CLI
  - o Ischemic rest pain > 2 weeks duration
  - o Ulcerations or gangrene of toe / foot
  - o Toe systolic pressure <50 mmHg
  - o Ankle systolic pressure < 70 mmHg
- ✓ No previous amputation or exposed tendon or bone in wound.
- ✓ No active infection of target extremity
- ✓ HbA1c < 10%

- ✓ No option for revascularization



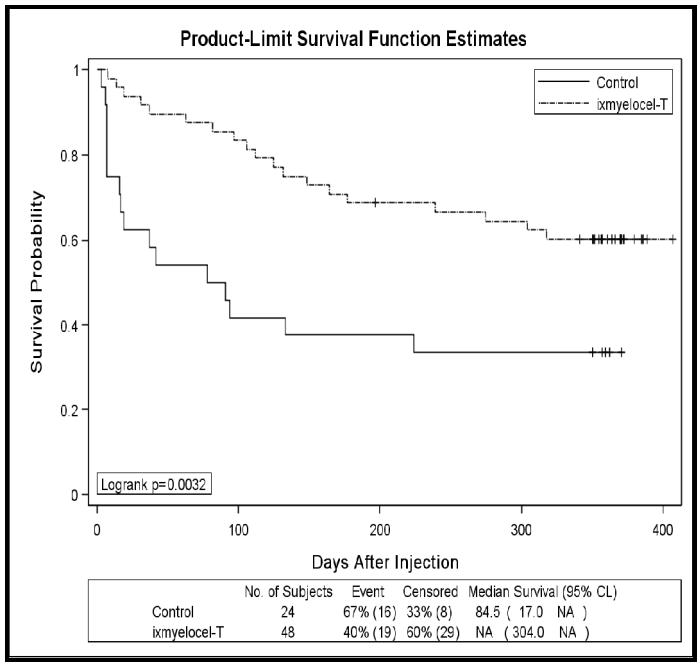
The study was powered as a safety trial with the primary endpoint in adverse events. However, there were significant efficacy endpoints, which include the primary endpoint time to first occurrence of treatment failure (TTF) at 12 months. TTF is a composite endpoint that includes four components:

- ✓ Major amputation of the treated leg
- ✓ All-cause mortality
- ✓ Doubling of wound size from baseline
- ✓ De novo gangrene

Below are graphical representations of the primary efficacy endpoint:

The chart to the right depicts the product-limit survival function showing a 62% risk reduction (hazard ratio 0.38, 95% CI = 0.20-0.74) in the composite endpoint of time to first occurrence of treatment failure (TTF) for patients taking ixmyelocel-T vs. the placebo.

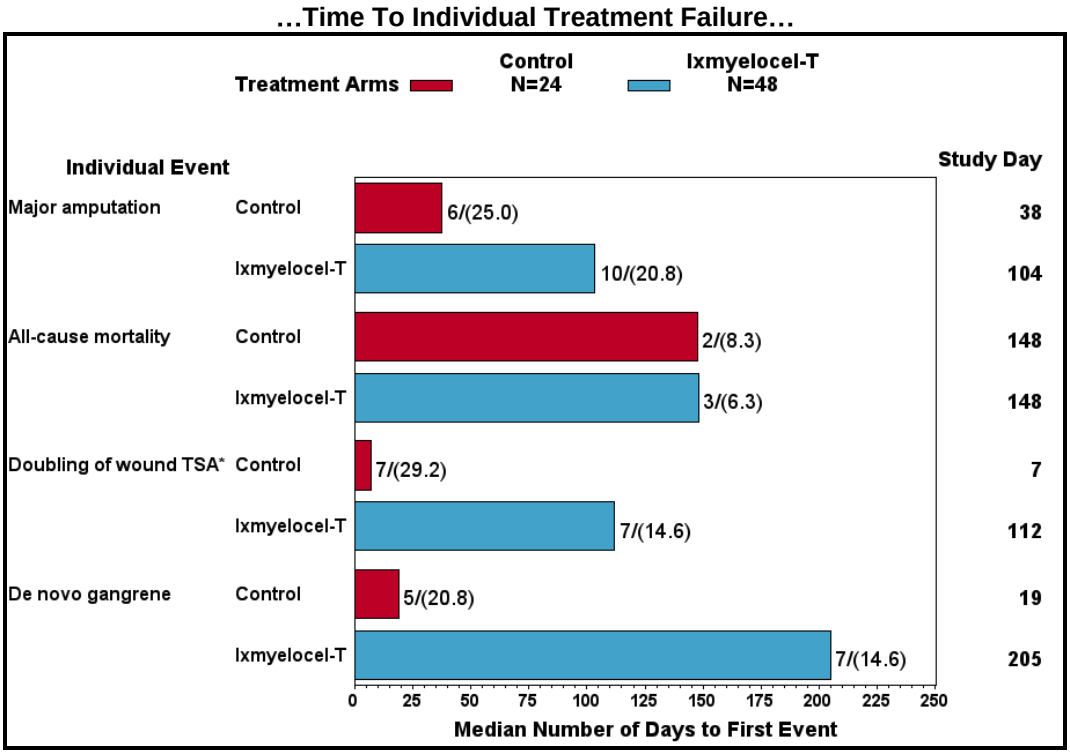
There were 19 events (40%) for the ixmyelocel-T group vs. 16 events (67%) for the placebo group, this equated to a p-value = 0.0032.



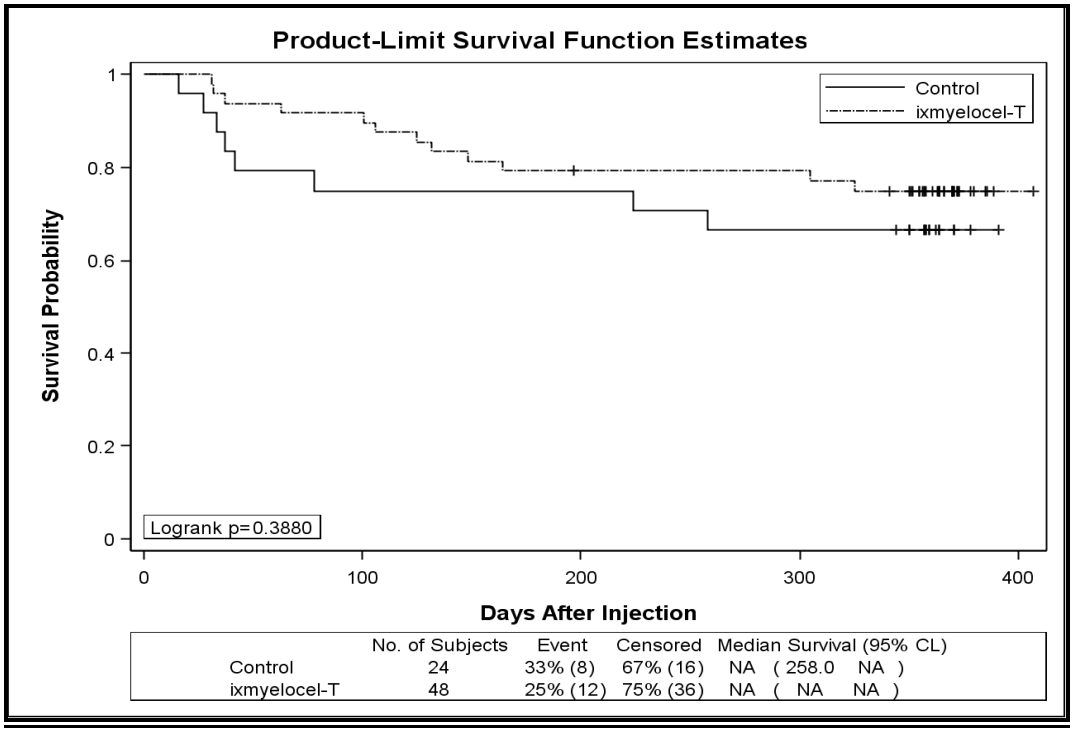
Events within the composite TTF endpoint include:

	Ixmyelocel-T (n=48)	Control (n=24)
Major Amputation	12.5%	16.7%
All-Cause Mortality	4.2%	4.2%
Wound Size	10.4%	29.2%
De Novo Gangrene	12.5%	16.7%
Total TTF Composite	**39.6%**	**66.7%**

Below is a graphical representation of each composite endpoint comparing ixmyelocel-T to the placebo control. It shows the time to individual treatment failure on study day vs. the median number of days to first event.



The secondary efficacy endpoint was Amputation-Free Survival (AFS) at 12 months. This is important because AFS at 12 months will be the primary endpoint in the companies phase 3 REVIVE trial.

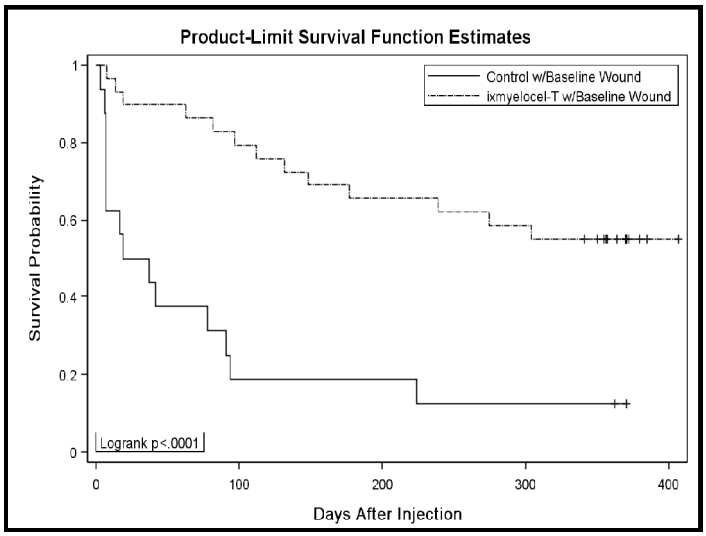


Based on the data above, the AFS-12 for the ixmyelocel-T group was 75% vs. 67% for the placebo control group. This accounts to a 32% risk reduction (hazard ratio 0.68, 95% CI 0.28-1.65). Results were not statistically significant (p-value 0.3880) given the small sample size.

…Subset Analysis Sheds Additional Light On Data…

The phase 2b RESTORE-CLI program enrolled both Rutherford-4 and Rutherford-5 patients. We note that the phase 3 REVIVE program will focus solely on "more sick" Rutherford-5 patients with confirmed tissue loss. From RESTORE-CLI, 45 of the 72 patients qualified as Rutherford-5 (29 in the ixmyelocel-T group and 16 in the control).

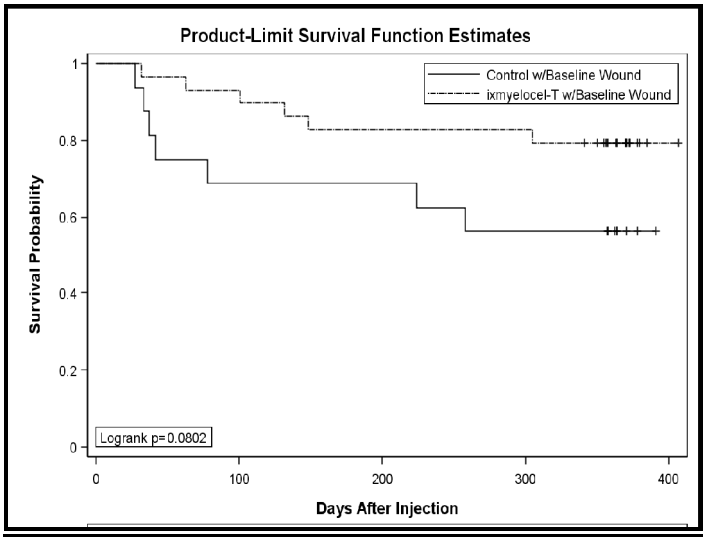
For the primary composite endpoint of TTF, Aastrom saw greater separation between the ixmyelocel-T group and the control. Results show a TTF for ixmyelocel-T at 44.8% vs. 87.5% for the control, p-value < 0.0001. This equated to a 77% risk reduction (hazard ratio = 0.225). This was greater statistical significance than in the total population.



For the primary composite endpoint of TTF, Aastrom saw greater separation between the ixmyelocel-T group and the control. Results show a TTF for ixmyelocel-T at 44.8% vs. 87.5% for the control, p-value < 0.0001. This equated to a 77% risk reduction (hazard ratio = 0.225). This was greater statistical significance than in the total population.

	Ixmyelocel-T (n=48)	Control (n=24)
Total TTF Composite	**39.6%**	**66.7%**
		p-value = 0.0032
	Ixmyelocel-T (n=29)	Control (n=16)
Rutherford-5 Subset	**44.8%**	**87.5%**
		p-value < 0.00012

The subset analysis of the Rutherford-5 patients on the secondary endpoint yielded impressive separation between the ixmyelocel-T group and the control. The Rutherford-5 AFS rate for the ixmyelocel-T group was 79%, lower than the AFS rate for the overall ixmyelocel-T population at 75%. Results showed even further separation from the control, which showed an AFS rate of 56%, down from the overall control population at 67%. This is a 61% risk reduction (hazard ratio of 0.391). Results were not statistically significant (p=0.0802), but we note the small sample size of only 45 patients, and remind investors that the phase 3 REVIVE program will be nearly 600 patients.



	Ixmyelocel-T (n=48)	Control (n=24)
Total AFS-12	**75%**	**67%**
		p-value = 0.3880
	Ixmyelocel-T (n=29)	Control (n=16)
Rutherford-5 Subset	**79%**	**57%**
		p-value = 0.0802

We are particularly enthused by this subset analysis of Rutherford-5 patients. As noted above, Aastrom's phase 3 REVIVE program will seek to enroll only patients with confirmed tissue loss, and might qualify as Rutherford-5. We remind investors that Aastrom and the U.S. FDA came to an agreement for a Special Protocol Assessment (SPA) on the REVIVE program in July 2011.

All in all we are pleased with the final results from RESTORE-CLI. We think the trial demonstrates excellent proof-of-concept in patients with no option CLI, especially those with confirmed tissue loss. The design of REVIVE is solid. If Aastrom can reproduce similar results in REVIVE to what was presented at AHA on November 14, 2011, we believe the trial will be successful. Ixmyelocel-T could be under review by the end of 2014.

Full data from RESTORE-CLI will be published later in 2012 in the Journal of Molecular Therapy.

…Poor-Option Discussions Ongoing…

Management is continuing discussions with the FDA on the SPA for the second phase 3 REVIVE program in "poor" options patients. We expect these discussions will continue in 2012. The look of the poor option version of REVIVE remains somewhat in question. We expect management will seek to enroll up to 250 patients with moderate CLI. These poor option patients will have disease progression with a clear path toward amputation.

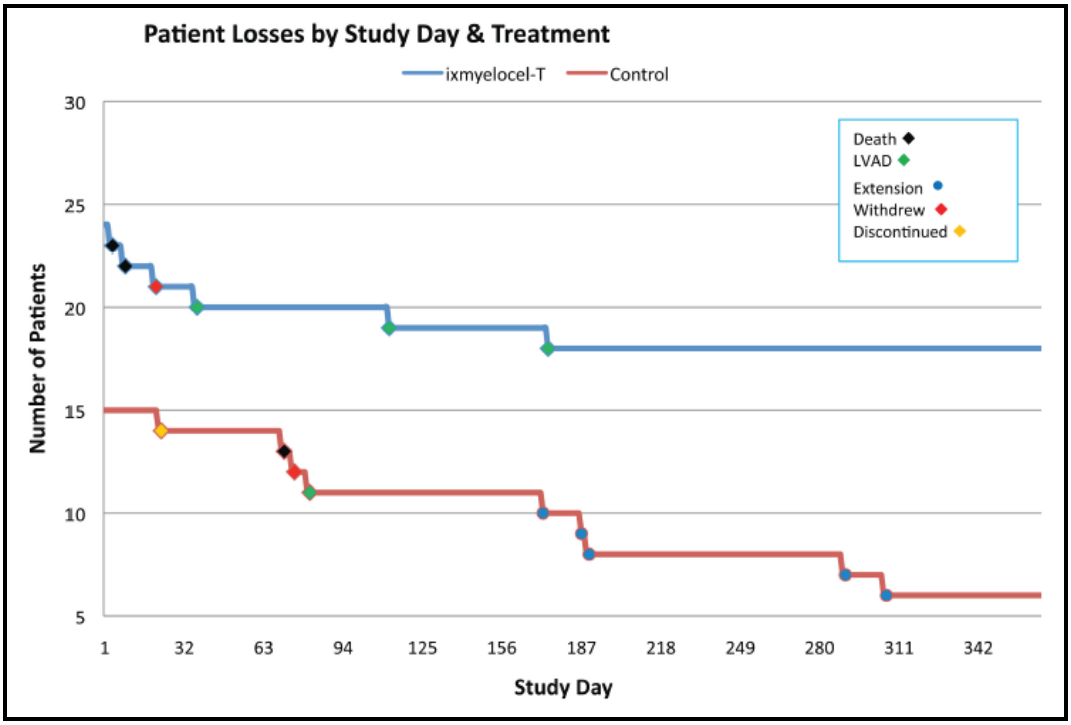
Conversations around the primary endpoint here are ongoing. We believe the FDA wants to see AFS-12 as the primary endpoint. Management is hoping to include revascularization or MALEFS (major adverse limb event free survival) as an endpoint. In the end, we expect Aastrom and the FDA to come to an agreement on a hybrid-AFS-12 endpoint that includes some aspects of revascularization or MALEFS for secondary analysis. If positive, we expect that management will look to file the data from REVIVE-POOR as either a supplement to the REVIVE-NO BLA filing, or as an expansion to the label for use in patients with CLI if the BLA has been approved in "no option" patients before the "poor option" application is filed.

Ixmyelocel-T – Dilated Cardiomyopathy (DCM)

In September 2011, Aastrom Bio announced 12-month follow up data from the phase 2 IMPACT-DCM clinical trial testing ixmyelocel-T as a treatment for DCM. Results show ixmyelocel-T was well-tolerated and that efficacy observations were consistent with improved function of impaired myocardium in patients DCM, including those with ischemic cardiomyopathy (ICM) and idiopathic dilated cardiomyopathy (IDC).

Data was presented by Amit N. Patel, MD, MS, associate professor of surgery at the University of Utah School of Medicine and national principal investigator for IMPACT-DCM in a poster presentation at the 15th Annual Heart Failure Society of America Scientific (AHFS) Meeting.

In the study, 40 patients diagnosed with ICM or IDC were randomized 3 to 1 to either a single administration of ixmyelocel-T or standard of care and were followed for 12 months. Patient retention was a key endpoint in the study. The data show that 21 of the 25 (84%) ixmyelocel-T patients completed the 12-month visit vs. 7 of 15 (47%) for the control. An additional 5 of 15 (33%) of the control patients enrolled into the extension phase of the study and received ixmyelocel-T treatment.



Results showed no difference in adverse events in treatment and control group patients after the initial post-operative period. ICM patients treated with ixmyelocel-T showed improved outcomes compared to control.

IMPACT-DCM Baseline Characteristics

	TRC Group (n=24)	Control (n=15)
Ischemic / Non-Ischemic	12 / 12	7 / 8
Ejection Fraction	28.4%	25.8%
NYHA Class-III	96%[1]	100%
Male / Female	60% / 40%	73% / 27%
Mean Age	60	58
Mean BMI	29	30

1 patient was NYHA Class IV

…Proof-Of-Concept Evident…

Proof-of-Concept was clearly evident by analyzing the data. Given the small size of the trial, no results are statistically significant, but the signs point to a quality of life benefit with TRCs. This will be explored further in a larger-scale phase 2b program. The data notes an improved outcome for the ICM patients far greater than for the IDC patients. Efficacy observations related to structural and functional end points including major adverse cardiovascular events (MACE), New York Heart Association (NYHA) functional classification, 6-minute walk distance, and septal wall thickening, were consistent with improved function of impaired myocardium.

	ICM	IDC	Control
Improvement in NYHA Class…			
@ 1 Month	9/10	5/11	2/14
@ 3 Months	9/10	5/11	1/11
@ 6 Months	8/10	7/9	2/10
@ 12 Months	9/10	7/9	3/6
Improvement in 6-Minute Walk Test…			
@ 1 Month	8/10	1/10	5/12
@ 6 Months	6/10	7/9	5/10
@ 12 Months	6/10	8/9	3/6
Increase in MRI/CT Septal Thickness…			
@ 6 Months	7/10	3/9	6/9
Decrease in MRI/CT End-Diastolic Diameter			
@ 6 Months	6/10	3/9	4/9
Increase in Echo Ejection Fraction…			
@ 1 Month	3/6	4/8	5/10
@ 3 Months	4/7	6/9	5/8
@ 6 Months	2/7	3/8	3/7
@ 12 Months	3/7	4/7	1/4
MACE Adverse Events…			
All MACE Events	6/12	5/12	7/15

We view the results as encouraging, especially for ischemic (ICM) patients, demonstrating improvements in NYHA functional class and clinically relevant outcomes such as the 6-minute walk test. Given the baseline characteristics of very sick patients, that fact that there were no discontinuations due to adverse events and that events were pretty similar between the control and ixmyelocel-T group is highly encouraging. Post-surgery, there was no difference in the incidence of AEs across the ixmyelocel-T and control groups.

Later this year, management expects to present 12-month data from the phase 2a catheter DCM study. This trial was designed to determine the safety and tolerability of administering expanded autologous cell therapy via catheter delivery (J&J's NOGA) directly into the myocardium to patients with heart failure due to DCM. The trial completed enrollment at 23 patients in December 2010. Interim data at the 6 month timeframe suggest safety superior to the surgical IMPACT data.

…Positive FDA Meeting / Phase 2b Planned For Q2-2012…

Aastrom recently met with the FDA to outline the design and necessary endpoints for a phase 2b study. Management expects the phase 2b program to begin in the second quarter 2012. The trial will be randomized, placebo-controlled program using the NOGA cardiac-mapping catheter device. The trial will most likely seek to enroll about 60-80 ischemic (ICM) DCM patients with MACE as the primary endpoint. Other potential secondary endpoints include cardio-pulmonary function, VO_2 max, exercise capacity, and/or 6-minute walk test. We remind investors that the FDA has granted Orphan Drug designation to Aastrom for use of its ixmyelocel-T in DCM. We expect 9 to 12 months to enroll, with data during the second half of 2013. We estimate the trial will cost Aastrom around $4 million ($50k per patient).

…DCM Backgrounder…

DCM is a condition in which the heart becomes weakened and enlarged, and cannot pump blood efficiently. The expansion of the heart and the decreased function results in poor blood circulation and affect the lungs, liver, and other body systems. In patients with DCM, the left or right ventricular systolic pump function of the heart becomes impaired, leading to progressive cardiac enlargement and hypertrophy, a process called remodeling.

There are an estimated 200k to 250k people living (prevalence) in the U.S. with DCM, with roughly 20,000 new cases (incidence) each year. About one in three cases of congestive heart failure (CHF) is due to DCM. The 1-year survival rate for a patient diagnosed with DCM is roughly 75%. The 5-year survival rate drops to only 30% because many patients with DCM go un-diagnosed until the disease has progressed to the most severe stages. As a general rule for idiopathic DCM, after 1-year, 1/3rd of patients exhibit improved cardiac function, 1/3rd have stable cardiac dysfunction, and 1/3rd progress to significant cardiac dysfunction. These 1/3rd that progress to severe cardiac dysfunction will require a heart transplant.

Standard of care for patients with DCM is often to treat secondary co-morbid conditions such as hypertension or renal failure. As such, patients with DCM are often prescribed angiotensin-converting enzyme (ACE) inhibitors, diuretics, beta-blockers, and sometimes digitalis. Anticoagulants may also be used. Artificial pacemakers and left ventricular assist devices (LVADs) may be used in patients with intra-ventricular conduction delay, and implantable cardioverter-defibrillators in those at risk of arrhythmia. These forms of treatment have been shown to improve symptoms and reduce hospitalization. They can cost upward of $75,000 each, and many patients will require re-implantation or an upgraded or new device in a year.

However, for patients with advanced disease who are refractory to medical therapy, cardiac transplantation is the only option. LVAD are commonly known as a "bridge to transplantation". The problem however, and the reason this is such as a significant medical problem, is that only about 2,000 heart transplants are done in the U.S. each year. That means of the estimated 150k NYHA Class 3 or 4 patients with dilation, over 95% will never get a transplant. Accordingly, this is why mortality rates start to rise dramatically after a patient has been diagnosed with DCM.

RECOMMENDATION & VALUATION

Remaining Bullish On Aastrom…

Now that Aastrom has completed its financing and the REVIVE trial is underway, we see little risks over the near-term. Results at the 12 month period from the DCM catheter program are expected to be presented later in 2012. However, given that management has already discussed these data with the U.S. FDA, and the FDA has cleared Aastrom moving into a larger phase 2b program, we see little risk in these data disappointing. Full data from RESTORE-CLI will be published in the Journal of Molecular Therapy. Results of the RESTORE-CLI trial have been met with skepticism by the investment community, and we're not sure why. Subset analysis shows the drug works, and just missed statistical significance (p=0.08) on the AFS-12 endpoint in only 45 patients. With 594 patients, and the statistical powering assumptions that management built into REVIVE, if management can reproduce these results the drug will be approved. We remind investors that REVIVE is being conducted under a special protocol assessment and has been designated Fast Track by the U.S. FDA. CLI is a serious condition, and Aastrom has a real chance to get ixmyelocel-T approved in 2015.

Besides CLI, management is moving forward in a phase 2b program in DCM. We expected that management would put the DCM program on the back burner for 2012 while they focused on REVIVE. However, raising $40 million provides a lot of flexibility. This is good news for shareholders. DCM represents a potentially larger overall market opportunity than CLI, and we believe that partnering discussions in CLI and DCM will lead to a major alliance with a large pharmaceutical company in 2014 or 2015.

We have performed a discounted cash flow (DCF) analysis based on our assumptions for ixmyelocel-T in both CLI and DCM. We arrive at a full value of $398 million, or $6+ per share. At today's price of only $2.04 per share, Aastrom represents a compelling long-term opportunity.

PROJECTED FINANCIALS

Aastrom Biosciences
Income Statement

Aastrom Biosciences	Dec-10	Dec-11	Mar-13	Jun-12	Sep-12	Dec-12	Dec-12	Dec-13	Dec-14	Dec-15
	2010 A	2011 A	Q1 E	Q2 E	Q3 E	Q4 E	2012 E	2013 E	2014 E	2015 E
R&D Agreements / Grants	**$0.3**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**
YOY Growth		*0%*	-	-	-	-	*0.0%*	*0%*	*0%*	*0%*
Product Sales	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**
YOY Growth		*0.0%*	-	-	-	-	*0.0%*	*0.0%*	*0.0%*	*0.0%*
Total Revenues	**$0.3**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**
YOY Growth		-	-	-	-	-	-	-	-	-
Research & Development	$15.1	$21.3	$6.0	$7.0	$7.5	$8.0	$28.5	$35.0	$35.0	$35.0
% R&D		-	-	-	-	-	-	-	-	-
Selling, General, and Admin	$6.2	$7.7	$1.8	$1.8	$1.9	$2.0	$7.5	$8.0	$8.5	$8.5
% SG&A		-	-	-	-	-	-	-	-	-
Operating Income	($21.0)	($29.1)	($7.8)	($8.8)	($9.4)	($10.0)	($36.0)	($43.0)	($43.5)	($43.5)
Operating Margin		-	-	-	-	-	-	-	-	-
Other Income (Expenses)	($4.7)	$9.4	($1.2)	($0.5)	($0.5)	($0.5)	($2.7)	($2.0)	($1.5)	($1.0)
Pre-Tax Income	($25.7)	($19.7)	($9.0)	($9.3)	($9.9)	($10.5)	($38.7)	($45.0)	($45.0)	($44.5)
Taxes & Other Charges	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Tax Rate	*0%*	*0%*	*0%*	*0%*	*0%*	*0%*	*0%*	*0%*	*0%*	*0%*
Net Income	($25.7)	($19.7)	($9.0)	($9.3)	($9.9)	($10.5)	($38.7)	($45.0)	($45.0)	($44.5)
Net Margin		-	-	-	-	-	-	-	-	-
Reported EPS	**($0.91)**	**($0.51)**	**($0.23)**	**($0.24)**	**($0.25)**	**($0.27)**	**($1.00)**	**($1.13)**	**($1.06)**	**($0.99)**
YOY Growth		-	-	-	-	-	-	-	-	-
Weighted Ave. Shares Out	28.3	38.6	38.7	38.8	38.9	39.0	38.9	40.0	42.5	45.0

Source: Zacks Investment Research, Inc. *Jason Napodano, CFA*

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Aastrom Biosciences
DCF Model

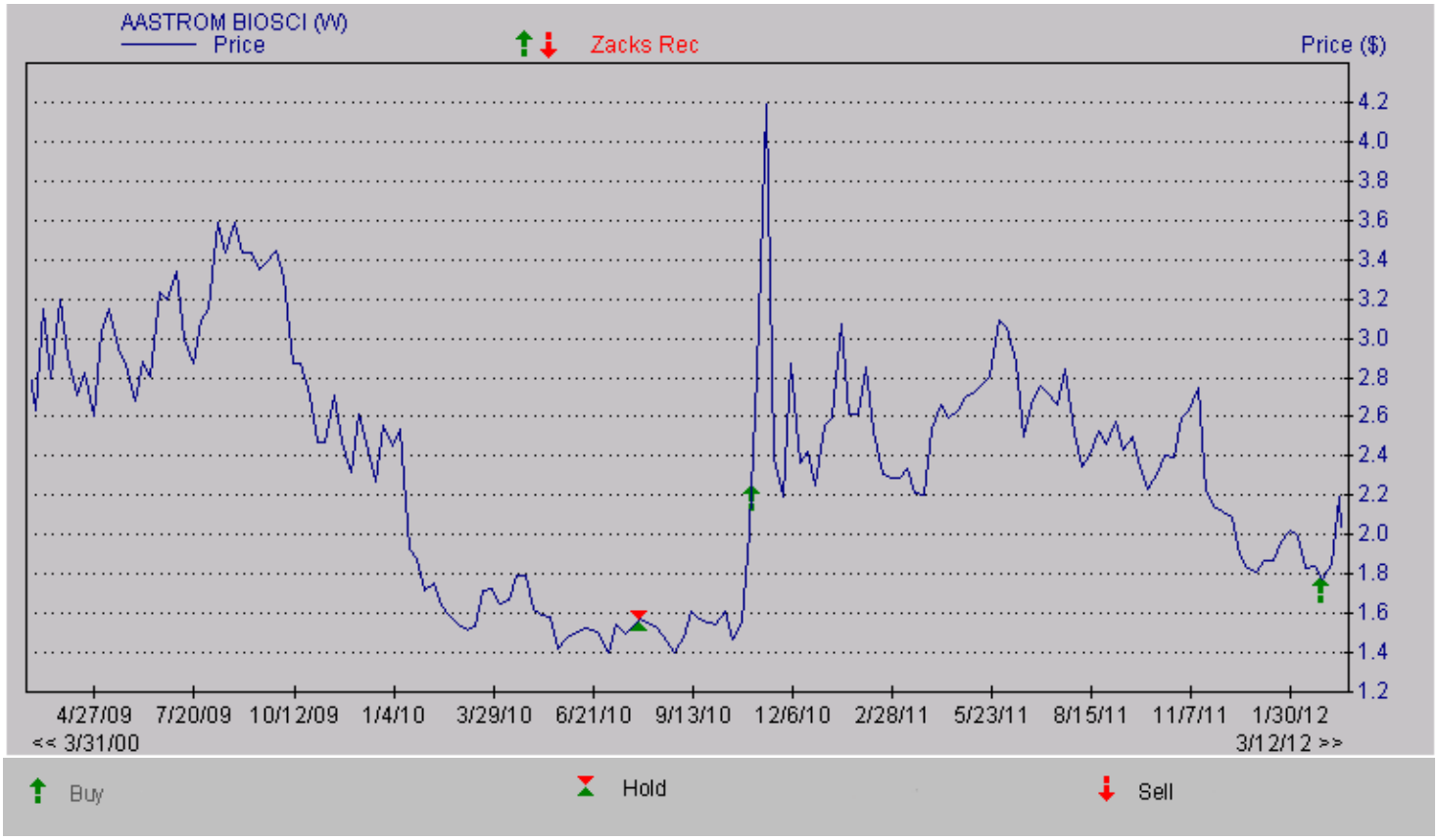
Aastrom Bio (ASTM)	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
Global Ixmy-T CLI Sales	**$0**	**$0**	**$0**	**$38**	**$130**	**$242**	**$361**	**$488**	**$621**	**$726**	**$818**
YoY Growth	-	-	-	-	*238%*	*87%*	*49%*	*35%*	*27%*	*17%*	*13%*
Global Ixmy-T DCM Sales	**$0**	**$0**	**$0**	**$0**	**$0**	**$46**	**$118**	**$194**	**$275**	**$361**	**$424**
YoY Growth	-	-	-	-	-	-	*156%*	*65%*	*42%*	*31%*	*18%*
Royalties	**$0**	**$0**	**$0**	**$8**	**$26**	**$58**	**$96**	**$136**	**$179**	**$217**	**$248**
YoY Growth	-	-	-	-	*238%*	*122%*	*66%*	*42%*	*31%*	*21%*	*14%*
Licensing & Collaborative	**$0**	**$0**	**$25**	**$55**	**$10**	**$35**	**$0**	**$10**	**$10**	**$10**	**$10**
Revenues (in Millions)	**$0**	**$0**	**$25**	**$63**	**$36**	**$93**	**$96**	**$146**	**$189**	**$227**	**$258**
YoY Growth	-	-	-	*151%*	*-43%*	*158%*	*4%*	*53%*	*29%*	*20%*	*14%*
CoGS	*$0*	*$0*	*$0*	*$0*	*$0*	*$0*	*$0*	*$0*	*$0*	*$0*	*$0*
R&D	*$29*	*$35*	*$35*	*$35*	*$30*	*$25*	*$25*	*$18*	*$23*	*$27*	*$31*
SG&A	*$8*	*$8*	*$9*	*$9*	*$9*	*$10*	*$11*	*$15*	*$19*	*$23*	*$26*
Other Expenses	*$0*	*$0*	*$0*	*$0*	*$0*	*$0*	*$0*	*$0*	*$0*	*$0*	*$0*
EBITDA	($36)	($43)	($19)	$19	($3)	$57	$60	$114	$148	$177	$202
Depreciation and amortization	*$1*	*$1*	*$1*	*$2*	*$2*	*$3*	*$3*	*$4*	*$4*	*$5*	*$5*
EBIT	**($37)**	**($44)**	**($20)**	**$17**	**($6)**	**$55**	**$56**	**$110**	**$143**	**$172**	**$196**
EBITDA margin	-	-	*-79.2%*	*27.7%*	*-15.9%*	*58.9%*	*58.7%*	*75.4%*	*75.7%*	*75.9%*	*75.9%*
Cash Taxes	$0	$0	$0	$0	$0	$0	($6)	($22)	($43)	($52)	($59)
Tax Rate	*0%*	*0%*	*0%*	*0%*	*0%*	*0%*	*10.0%*	*20.0%*	*30.0%*	*30.0%*	*30.0%*
Balance Sheet											
Capital Expenditures	$0	$5	$5	$5	$5	$4	$3	$2	$1	$0	($1)
Working Capital	$2	$2	$3	$3	$4	$4	$5	$5	$6	$6	$7
Interest & Other Expenses	($3)	($2)	($2)	($1)	($1)	$0	$1	$1	$2	$2	$3
Non-Cash Adjustments	($1)	($1)	($1)	($2)	($2)	($2)	($2)	($2)	($2)	($3)	($3)
Capital demployed	**($2)**	**$4**	**$5**	**$5**	**$6**	**$6**	**$6**	**$6**	**$6**	**$6**	**$5**
ROIC	*1846.2%*	*-1162.2%*	*-406.6%*	*354.8%*	*-54.9%*	*940.7%*	*1001.8%*	*1969.2%*	*2613.3%*	*3223.6%*	*3767.8%*
Discounted Cash Flow											
Net Income	($37)	($44)	($20)	$17	($6)	$55	$51	$88	$100	$121	$137
Depreciation and amortization	$1	$1	$1	$2	$2	$3	$3	$4	$4	$5	$5
Net Cash Changes	$2	($4)	($5)	($5)	($6)	($6)	($6)	($6)	($6)	($6)	($5)
Post-Tax Operating Cash Flow	**($34)**	**($47)**	**($23)**	**$14**	**($10)**	**$51**	**$48**	**$86**	**$99**	**$120**	**$137**
Dividends	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Free Cash Flow	**($34)**	**($47)**	**($23)**	**$14**	**($10)**	**$51**	**$48**	**$86**	**$99**	**$120**	**$137**

Assumptions	
Beta:	1.50
Equity Risk Premium:	7.5%
Risk Free Rate:	2.0%
Firm Risk Premium:	50.0%
Discount Rate:	**13.3%**

Valuation	
10-Year Model:	$99.0
Terminal Growth:	0%
Terminal Value:	$263.7
Net Cash - LT Debt:	$37.0
Firm Value:	**$399.7**

Price Target	
Basic Outstanding:	38.8
Warrants / Options:	23.2
Preferred Stock:	12.3
Fully Diluted:	63.9
Target Price:	**$6.26**

HISTORICAL ZACKS RECOMMENDATIONS



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