Janney CAPITAL MARKETS

Kimberly Lee, DO 415-229-7015
klee@janney.com

Onconova Therapeutics, Inc.

ONTX - BUY

August 19, 2013

Biotechnology

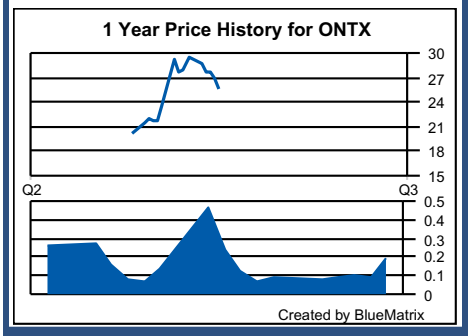
Onconova Therapeutics, Inc.

(ONTX) - BUY

Price:	**$25.69**
Fair Value Estimate:	$40.00
52-Week Range:	$15.00-$30.00
Market Cap (MM):	$550
Shr.O/S-Diluted (mm):	21.4
Average Daily Volume:	NA

FYE: Dec	2012A	2013E	2014E
EPS:	$(11.50)A	$(3.77)E	$(4.61)E
Prior EPS:		NC	NC
P/E Ratio:	NA	NA	NA
Quarterly EPS:			
Q1	--	$(1.03)E	--
Q2	--	$(1.05)E	--
Q3	--	$(0.84)E	--
Q4	--	$(0.91)E	--

FYE: Dec	2012A	2013E	2014E
Revenue (M):	$46.0A	$4.4E	$1.1E
Quarterly Revenue (M):			
Q1	--	$1.1E	--
Q2	--	$1.1E	--
Q3	--	$1.1E	--
Q4	--	$1.1E	--



Equity Research
Basic Report

ONTX: Initiating with a BUY and $40 FV

Opening the Door to 2nd-Line MDS Tx

INVESTMENT CONCLUSION:

We view Onconova's main value driver and lead product candidate, rigosertib, as a validated, first-in-class, IV and oral therapy for the treatment of myelodysplastic syndrome (MDS) and other cancers targeting significant market opportunities. The drug's synergistic mechanisms of action as inhibitor of the PI3K and PLK pathways allow for broad utility in a variety of cancer types. We believe rigosertib's value proposition lies in its demonstration of duration of benefit in 2nd-line MDS therapy where there are no treatment options, its lack of myelosuppression and its effectiveness as a single agent or in combination therapy. We also consider sapacitabine as a pipeline within a single drug as it has demonstrated promising data to support use in lower-risk MDS patients and as a treatment option in patients with solid tumors such as pancreatic and head and neck cancers. We believe ONTX's near-term success will be correlated with success in its ONTIME registration Phase III study in higher-risk MDS, which is being studied under a Special Protocol Assessment (SPA), but other shots on goal in pancreatic cancer and other solid tumors can be seen as call options, in our view. We see nearing catalysts in 4Q13/1Q14 such as top-line data release from the pivotal ONTIME study in higher-risk MDS patients, Phase II data in lower-risk MDS and interim Phase III pancreatic data as value drivers. We consider ONTX a compelling investment based on a burgeoning pipeline, near-term milestones, and attractive valuation. As such, we are initiating with a Buy rating and $40 fair value estimate, which is based on a DCF analysis that examines free cash flow through 2020.

KEY POINTS:

- **Rigosertib – novel small molecule with unique mechanism of action.** Rigosertib is a well-tolerated, highly differentiated small molecule therapy targeting significant market opportunities, in our view. What differentiates this drug from marketed drugs like Dacogen and Vidaza is its ability to target numerous different cancer types safely with high selectivity. We believe rigosertib's unique mechanism of action could be one of the differentiating factors that would allow for improved efficacy and reduced toxicity. Data to date in the higher-risk MDS population has been very positive, with 12 objective responses and 15 stable bone marrow responses with correlating median survival of 40 weeks seen in Phase II studies. We find data from the longer-term survivors in these studies as impressive, with 23 patients surviving at least six months, three patients surviving over two years and eleven patients surviving over one year. Importantly, given that there are no 2nd-line options available for patients who fail Vidaza or Dacogen, we view this pathway as low hanging fruit.
- **Multiple shots on goal.** Rigosertib is also being tested in a Phase II study in transfusion-dependent MDS patients and in head and neck cancer patients as well as a Phase III study in pancreatic cancer patients. Data so far suggest utility in all three indications. We do not include value from the solid tumor programs but view them as value options that could provide significant upside in the future.
- **An appealing investment ahead of value-driving milestones.** We recommend ONTX shares based on rigosertib's compelling profile, meaningful market opportunities, long-term growth prospects, upcoming catalysts, and favorable valuation.

Research Analyst Certifications and Important Disclosures are on pages 20 - 22 of this report

Summary and Investment Highlights

Company Description
Onconova Therapeutics (ONTX) is a clinical-stage biopharmaceutical company that discovers and develops therapies for oncologic conditions. The company has established an extensive library of targeted anti-cancer agents designed to work against specific cellular pathways important to cancer by utilizing its proprietary chemistry platform. The company has three clinical stage product candidates and six preclinical candidates. Rigosertib is ONTX's lead drug, currently in Phase III development for higher-risk myelodysplastic syndrome (MDS) under a Special Protocol Assessment (SPA) and in a Phase III study for metastatic pancreatic cancer, two Phase II studies for transfusion-dependent lower-risk MDS, and one Phase II study for head and neck cancer. Baxter is ONTX's commercialization partner for rigosertib in the EU, but Onconova retains full commercial rights to rigosertib in the US. The drug has been granted orphan drug status for MDS in US and EU as well as orphan drug status for pancreatic cancer in the US. The company is also developing recilisib for the treatment of acute radiation syndrome (ARS) in a Phase I study and ON013105 in a Phase I study for refractory lymphoma.

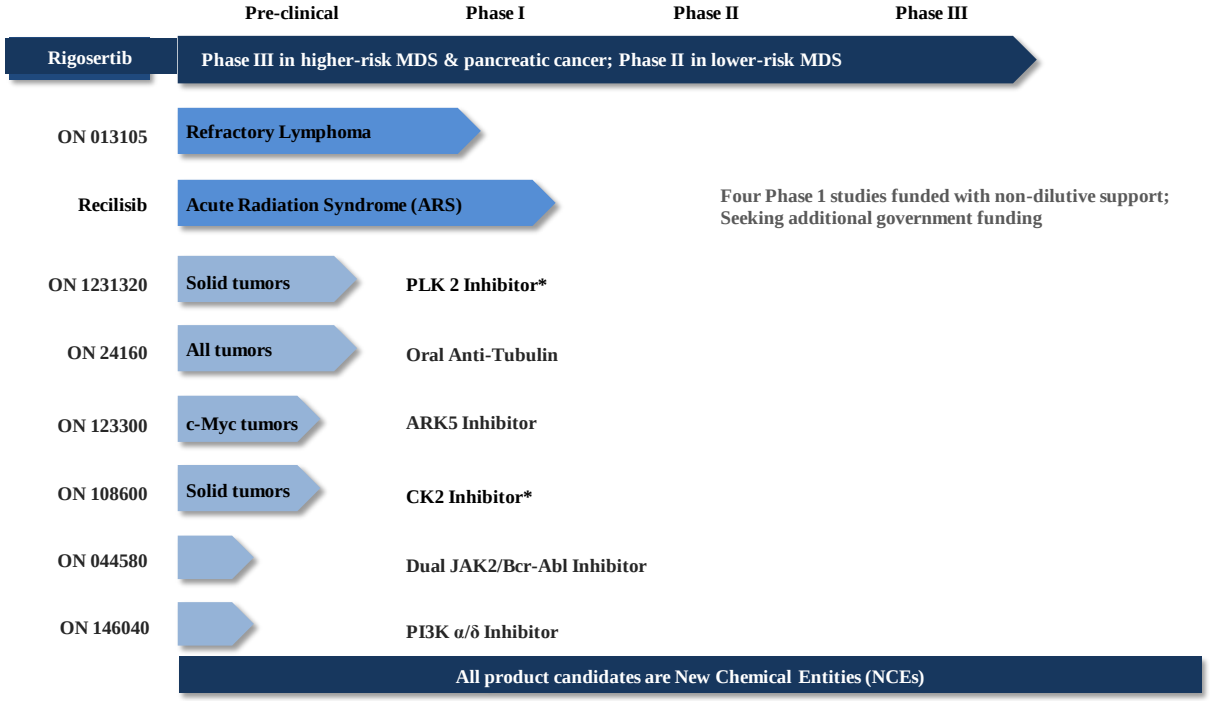
We are initiating coverage of Onconova Therapeutics with a Buy rating and $40 fair value estimate. We believe Onconova is a compelling investment for small-cap investors for the following reasons:

1) Novel, late-stage program - Rigosertib is a first-in-class dual PI3K/PLK pathway inhibitor with a differentiated profile targeting unmet medical needs with little competition;
2) Meaningful global market opportunity for rigosertib in MDS alone (over $1.0 billion by 2021);
3) Several shots on goal – The company's strategy of developing rigosertib in multiple indications de-risks its clinical program and provides the company with several potential unmet medical opportunities, in our view;
4) Partnership validation – Collaborations with Baxter, SymBio and the Leukemia & Lymphoma Society partially validates the rigosertib program, in our view;
5) Near-term catalysts could provide positive headlines for the company;
6) Attractive valuation with upside potential from earlier-stage pipeline candidates

Valuation
Our 12-month fair value estimate of $40 is based on a DCF analysis that evaluates cash flow through 2020. Based on a pro-forma fully diluted share count of 21.4 million plus the impact of in-the-money options outstanding and assuming the midpoint of the discount rate at 20%, our calculated average intrinsic share value is $40 (Exhibit 2). ONTX has a pro-forma cash position of approximately $112 million as of 3Q13, inclusive of the recent $79.6 million offering, which is sufficient to support operations through 2H14, per our estimates. This does not include the potential receipt of up to $512.5 million in milestone payments from Baxter with a near-term $50 million milestone payment for successful completion of a Phase III higher-risk MDS study, expected in 4Q13/1Q14.

Risks to fair value estimate
Risks to our fair value estimate include negative clinical data for rigosertib, unexpected delay in the initiation of lower-risk MDS Phase III studies, regulatory risk, partnering risk, overestimation of target patient populations, inability to penetrate the MDS market, pricing pressures, and reimbursement risk.

Exhibit 1: Pipeline Chart



***Collaboration with GVK Biosciences to develop through proof of concept**

Source: Company reports and Janney Montgomery Scott LLC

Exhibit 2: DCF Analysis

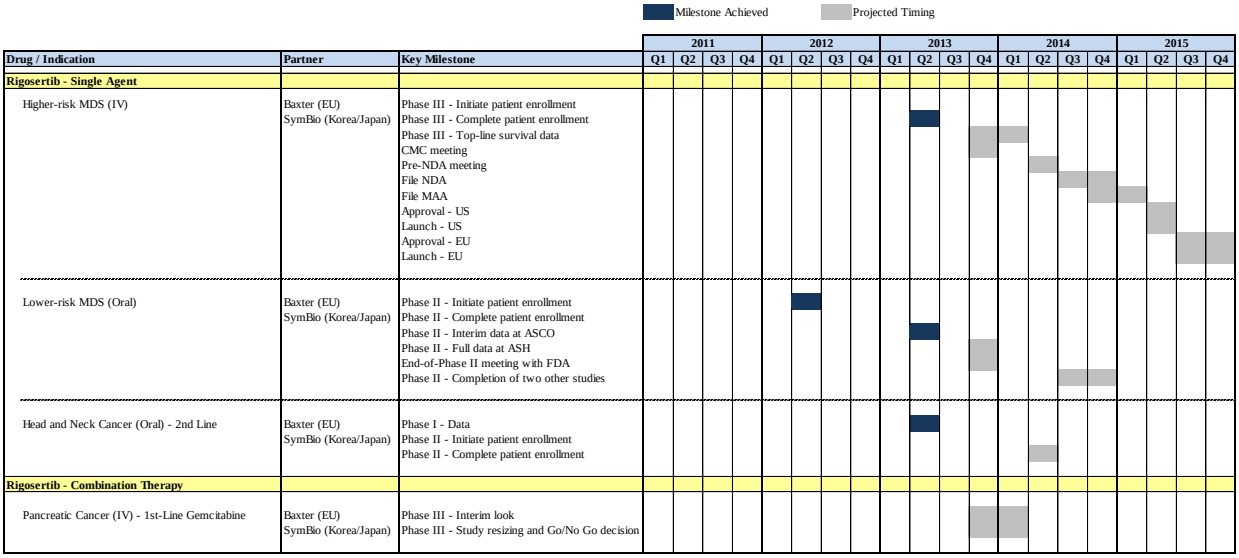
Onconova Therapeutics (NASDAQ: ONTX)
Discounted Cash Flow Analysis - Revenue Multiple Terminal Value Method
(In thousands, except per share data)

	6-Months 2013	For the Projected FYE Ending December 31, 2014	2015	2016	2017	2018	2019	2020
EBITDA	$ (37,336)	$ (99,796)	$ (125,602)	$ (144,922)	$ (138,177)	$ (61,841)	$ 127,027	$ 385,829
Less: Depreciation and Amortization	(176)	(328)	(288)	(268)	(288)	(403)	(731)	(1,371)
EBIT	(37,511)	(100,124)	(125,890)	(145,189)	(138,464)	(62,244)	126,296	384,458
Less: Taxes @ 35.0%	13,129	35,043	44,062	50,816	48,462	21,786	(44,204)	(134,560)
Net Income Unlevered	(24,382)	(65,080)	(81,829)	(94,373)	(90,002)	(40,459)	82,092	249,898
Plus: Depreciation and Amortization	176	328	288	268	288	403	731	1,371
Less: Capital Expenditures	(140)	(5)	(32)	(120)	(402)	(1,104)	(2,423)	(4,210)
Less: Changes in Net Working Capital	(854)	1,951	735	(743)	(7,727)	(24,314)	(35,844)	(49,499)
Unlevered Free Cash Flow	$ (25,200)	$ (62,807)	$ (80,837)	$ (94,969)	$ (97,844)	$ (65,474)	$ 44,556	$ 197,560

		Assuming Discount Rates of: 19.0%	19.5%	20.0%	20.5%	21.0%
Present Value of Unlevered Free Cash Flow		$ (177,082)	$ (176,063)	$ (175,034)	$ (173,996)	$ (172,951)
Present Value of Terminal Value Assuming	**Exit Multiple**					
	4.50x	$ 1,026,155	$ 994,348	$ 963,653	$ 934,028	$ 905,431
	4.75	1,083,163	1,049,589	1,017,190	985,919	955,733
2020 Revenue $ 842,029	**5.00**	1,140,172	1,104,831	1,070,726	1,037,809	1,006,034
	5.25	1,197,180	1,160,072	1,124,262	1,089,700	1,056,336
	5.50	1,254,189	1,215,314	1,177,799	1,141,590	1,106,638
Enterprise Value	**4.50x**	$ 849,073	$ 818,285	$ 788,619	$ 760,032	$ 732,480
(PV of Free Cash Flow + PV of Terminal Value)	**4.75**	906,081	873,526	842,156	811,922	782,782
	5.00	963,090	928,768	895,692	863,813	833,084
	5.25	1,020,099	984,009	949,228	915,703	883,385
	5.50	1,077,107	1,039,251	1,002,765	967,594	933,687
Net Debt (as of 6/30/13)		$ (51,544)	$ (51,544)	$ (51,544)	$ (51,544)	$ (51,544)
Options Proceeds		23,890	23,890	23,890	23,890	23,890
Equity Value	**4.50x**	$ 924,507	$ 893,719	$ 864,053	$ 835,466	$ 807,914
(Enterprise Value - Net Debt + Option Proceeds)	**4.75**	981,515	948,960	917,590	887,356	858,216
	5.00	1,038,524	1,004,202	971,126	939,247	908,518
	5.25	1,095,533	1,059,443	1,024,662	991,137	958,819
	5.50	1,152,541	1,114,685	1,078,199	1,043,028	1,009,121
Shares Outstanding		21,389	21,389	21,389	21,389	21,389
Options Outstanding ("In-the-Money")		2,797	2,797	2,797	2,797	2,797
Diluted Shares Outstanding		24,186	24,186	24,186	24,186	24,186
Implied Price Per Share	**4.50x**	$ 38.22	$ 36.95	$ 35.73	$ 34.54	$ 33.40
	4.75	40.58	39.24	37.94	36.69	35.48
	5.00	42.94	41.52	40.15	38.83	37.56
	5.25	45.30	43.80	42.37	40.98	39.64
	5.50	47.65	46.09	44.58	43.13	41.72

Source: Company reports and Janney Montgomery Scott LLC estimates

Exhibit 3: Projected Milestones



Drug / Indication	Partner	Key Milestone	2011 Q1	2011 Q2	2011 Q3	2011 Q4	2012 Q1	2012 Q2	2012 Q3	2012 Q4	2013 Q1	2013 Q2	2013 Q3	2013 Q4	2014 Q1	2014 Q2	2014 Q3	2014 Q4	2015 Q1	2015 Q2	2015 Q3	2015 Q4
Rigosertib - Single Agent																						
Higher-risk MDS (IV)	Baxter (EU)	Phase III - Initiate patient enrollment																				
	SymBio (Korea/Japan)	Phase III - Complete patient enrollment																				
		Phase III - Top-line survival data																				
		CMC meeting																				
		Pre-NDA meeting																				
		File NDA																				
		File MAA																				
		Approval - US																				
		Launch - US																				
		Approval - EU																				
		Launch - EU																				
Lower-risk MDS (Oral)	Baxter (EU)	Phase II - Initiate patient enrollment																				
	SymBio (Korea/Japan)	Phase II - Complete patient enrollment																				
		Phase II - Interim data at ASCO																				
		Phase II - Full data at ASH																				
		End-of-Phase II meeting with FDA																				
		Phase II - Completion of two other studies																				
Head and Neck Cancer (Oral) - 2nd Line	Baxter (EU)	Phase I - Data																				
	SymBio (Korea/Japan)	Phase II - Initiate patient enrollment																				
		Phase II - Complete patient enrollment																				
Rigosertib - Combination Therapy																						
Pancreatic Cancer (IV) - 1st-Line Gemcitabine	Baxter (EU)	Phase III - Interim look																				
	SymBio (Korea/Japan)	Phase III - Study resizing and Go/No Go decision																				

Source: Company reports and Janney Montgomery Scott LLC estimates

Myelodysplastic syndrome overview

Myelodysplastic syndrome (MDS) is a disease in which immature blood stem cells or blasts in the bone marrow do not produce enough healthy red and white blood cells and platelets. The blasts accumulate in the bone marrow leaving less room for healthy blood cells to form in the bone marrow. The mature blood cells that are made can also be defective. According to the National Cancer Institute, the 2011 estimated incidence of MDS is approximately 15,600 cases and the prevalence of MDS is approximately 52,000 cases in the US. The condition is usually diagnosed via blood tests and/or symptoms which include shortness of breath, weakness, anemia, fatigue, easy bruising or petechiae, fever and frequent infections. MDS are not cancer themselves but about 30% of the time, the syndromes are a precursor to leukemias such as acute myeloid leukemia (AML) and chrome myelomonocytic leukemia (CMML). MDS can be caused by chemotherapy with alkylating agents, radiation, and industrial solvents; however, over 60% of the time, no specific causes are identified. The aim of treatment is to control symptoms, improve quality of life and overall survival, and decrease progression to acute myelogenous leukemia (AML). Standards of care include 5-azacytidine, decitabine, lenalidomide (only del5q patients) and stem cell transplantation. The outlook in MDS is poor with the majority of patients progressing within a few months to refractory acute myeloid leukemia. Median survival varies from years to months, depending on type. Stem cell or bone marrow transplantation offers cure, with survival rates of 50% at 3 years, although older patients do poorly.

There are different types of MDS and different affiliated risk scores. Physicians utilize the World Health Organization (WHO) Classification System to ascertain prognosis (Exhibit 4).

Exhibit 4: WHO Classification System

MDS Types	Marrow/Blood Findings
Refractory cytopenia with unilineage dysplasia	Less than 5% marrow blasts 1 or 2 blood cytopenias 1 blood dysplasia
Refractory anemia with ringed sideroblasts (RARS)	Less than 5% blasts in marrow 15% or more ringed sideroblasts Red blood cell dysplasia only
Refractory cytopenia with multilineage dysplasia (RCMD) ± ringed sideroblasts	Less than 5% blasts in marrow 2 or more blood cytopenias, OR 2 or more blood dysplasias With or without ringed sideroblasts
Refractory anemia with excess blasts (RAEB I, II)	RAEB I: 5-9% marrow blasts RAEB II: 10-19% marrow blasts
5q- syndrome	Deletion of the long arm of chromosome 5, with no other chromosome abnormality
Unclassified MDS	Note: Just 1-2% of MDS patients have this type

Source: World Health Organization and Janney Montgomery Scott LLC

Researchers use the International Prognostic Scoring System (IPSS) to predict the chance that the disease could progress to AML. To determine an IPSS risk score, a physician examines:

1) The percentage of blasts in a patient's marrow
2) The number of red and white blood cells as well as platelets
3) The number of abnormal chromosomes present
4) Whether a patient needs blood transfusions

IPSS risk scores are categorized as low, intermediate-1, intermediate-2 or high risk and are used by physicians to determine a treatment plan. Lower-risk MDS patients are patients with IPSS scores of low and intermediate-1, with an overall survival of about three to six years. Approximately 77% of MDS patients are classified in this category. Higher-risk MDS patients (23% of the MDS population) usually have RAEB-1, RAEB-2 or RAEB-t or have IPSS scores of intermediate-2 or high, with a median survival of less than two years. They usually require more aggressive therapy like transplantation. That said, patients with the same risk score and type of MDS can still respond differently to treatment as age, overall health and other factors all influence a patient's response to the disease and treatment. A significant number of higher risk MDS patients fail or cannot tolerate treatment with azacitidine or decitabine and almost all patients who initially respond to therapy eventually relapse. Median survival time of MDS patients who have failed hypomethylating drugs is less than six months.

PI3K and PLK cellular signaling pathways – Synergistic mechanisms that target MDS and cancers and a key differentiator for rigosertib

Phosphoinositide 3-kinase, or PI3K, and polo-like kinase, or PLK, are commonly seen as being over active in cancer cells. These central pathways seem to regulate cell survival and apoptosis. The PI3 kinase pathway is critical for cell survival and seems to be altered in cancer. PI3K signaling promotes cell growth, proliferation, survival and metabolism, usually under stressful conditions, such as under low oxygen levels often found in tumors. Inhibition of this pathway in cancer cells has been shown to promote tumor cell apoptosis or programmed cell death.

The PLK pathway has a critical role in maintaining proper chromosome organization and sorting during cell division. Modulation of this pathway arrests cancer cells in the M phase, a late stage of the cell division cycle, and triggers cell death.

The company's lead drug candidate, rigosertib, targets both tumor cell survival and division by dually inhibiting these two central signaling pathways without resulting in cumulative toxicity. This allows the drug to have broad utility in a variety of cancer types. The key differentiating factor between rigosertib and other mitotic inhibitors such as taxanes and vinca alkaloids is that rigosertib maintains healthy cells in the GI phase which does not set off cell death. The result is a potentially favorable safety profile that excludes anemia, cytopenia, leukopenia and neutropenia.

Rigosertib – a novel, validated, late-stage drug candidate with multiple shots on goal

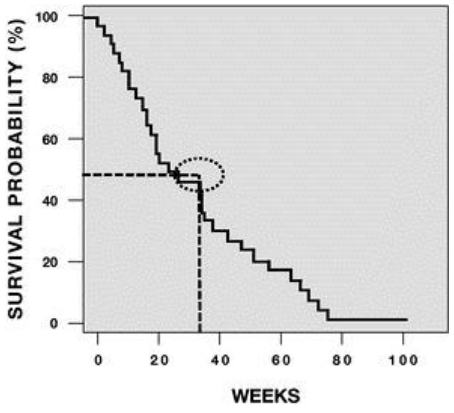
Rigosertib is a small molecule that is available in IV and oral formulations and is active as a single agent or in combination. Its selectivity towards cancer cells while protecting normal, healthy cells has been validated in the clinic and well tolerated in more than 850 patients in several clinical studies. The drug is dosed intravenously for three days every two weeks in MDS patients who have failed prior azacitidine or decitabine therapy. The emerging side effect profile suggests that rigosertib is favorably differentiated from the marketed hypomethylating agents (Celgene's azacitidine (Vidaza) and Eisai/JNJ's decitabine (Dacogen)), offering potential benefit in patients with myelosuppression. Safety data to date demonstrate preservation of bone marrow cellularity in rigosertib-treated MDS patients. The lack of myelosuppression seems to increase the treatment duration for these patients and to allow for various feasible administration schedules, in our view. The lack of GI and skin effects also indicate to us rigosertib's selectivity.

Higher-risk MDS- 2nd-line (IV)

Phase I/II data

The company conducted two Phase I studies, one Phase II study, and one Phase I/II study with 79 patients with MDS and AML. Of these patients, 39 were higher-risk MDS patients who failed prior treatment with hypomethylating agents. In an intent-to-treat (ITT) analysis, the median survival was 35 weeks (Exhibit 5). Twenty-three and 11 patients survived at least six months and more than one year, respectively, including one patient alive at 142 weeks. Three patients lived for more than two years (Exhibit 6). This compares to a survival rate of 17 to 22 weeks in 2nd-line patients from four peer-reviewed publications.

Exhibit 5: Phase I/II Survival Data – Kaplan-Meier Curve



Source: Company Reports

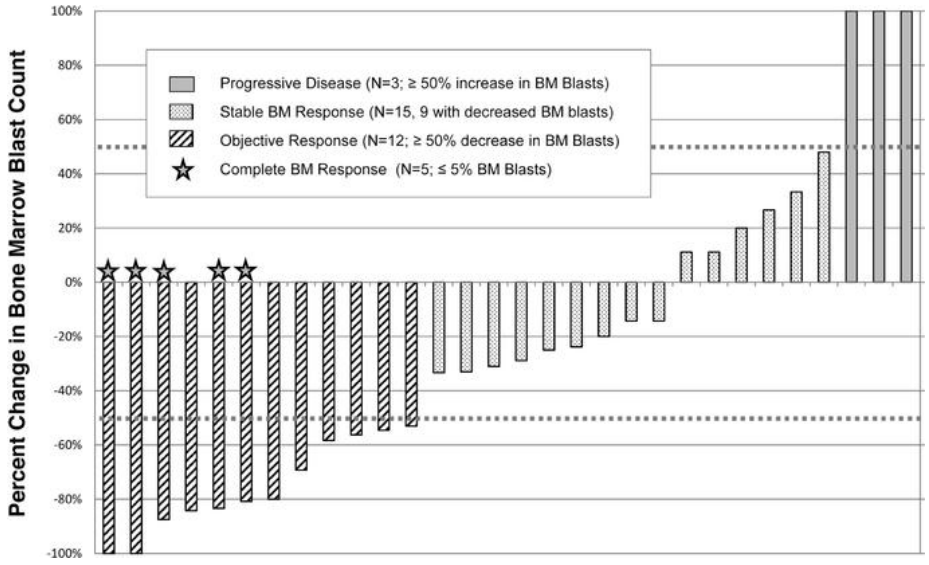
Exhibit 6: Phase I/II Survival Data – Kaplan-Meier Curve

Site	PID	Cytogenetics	FAB*	Survival*	BM#
04-05	2	Complex	RAEB2	68 weeks	BMCR
	4	Complex	RAEB2	71	BMCR
	10	Tri8	RAEB2	58	BMPR
	14	Mo 7	RAEB2	35	NA
04-15	4	Tri 14	RAEBt	40	SD
	14	Mo7	RAEB2	28	SD
	17	Tri11	RAEB2	25	NA
	23	del 5q	RAEB1	77	NA
04-17	1	Tri8, -Y, del 5q	RAEBt	74	SD
	2	t(8,10)	RAEB2	49	SD
	3	Normal	RAEB1	44	BMPR
	4	+19,+8	RAEB1	36	BMCR
	5	Normal	RAEB1	**103**	BMPR
	8	t(14:18)	RAEB1	**142***	BMCR
	10	Normal	RAEBt	37	BMCR
	11	Normal	RAEBt	53	SD
	12	Tri8	RAEB2	65	SD
	22	Normal	RAEB1	36	SD
07-H-0225	02-02	Tri8, Complex	RAEB2	35	SD
	02-07	Tri 11	RAEB2	**146**	SD
	02-08	Tri 8	RAEB1	**114**	SD
	02-10	Tri 8	RAEB1	47	SD
	02-11	Complex	RAEB1	31	SD

*Bone marrow aspirate/biopsy scored for blast counts
Source: Company Reports

Twenty-one of the 30 evaluable patients experienced a reduction in bone marrow blast count, while 12 patients within this subset demonstrated an objective response (more than a 50% reduction) (Exhibit 7). Five patients had a complete bone marrow blast response (blast count reduction to less than 5% of bone marrow cells present). Nine patients experienced an increase in blast count, with three patients showing progressive disease.

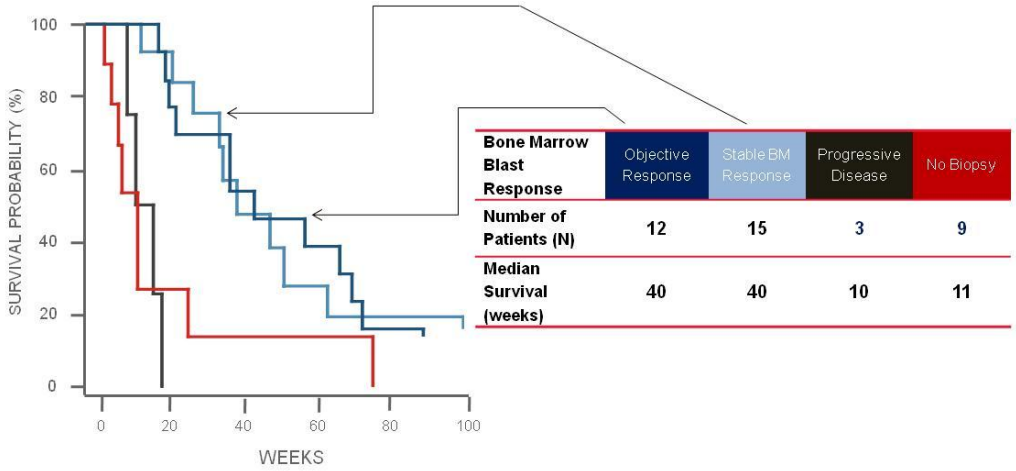
Exhibit 7: Bone Marrow Responses from Phase I/II Study



Source: Company Reports

Further analyses showed a positive correlation between bone marrow blast response and overall survival with a highly statistically significant p-value of 0.003. Those with objective bone marrow response who had stable bone marrow counts demonstrated a higher survival rate than those who progressed during treatment (40 weeks versus 10 weeks) (Exhibit 8). Karyotype seemed unrelated to bone marrow response or survival.

Exhibit 8: Correlation between Bone Marrow Blast Response and Survival



Source: Company Reports

Data from these studies also demonstrated the relationship between duration of drug exposure and bone marrow response. Overall, more patients who received three-day infusions of rigosertib every two weeks achieved improved bone marrow blast responses comparable to patients who received two-day infusions every week for three weeks of a four week cycle. Extending infusion duration beyond three days did not improve blast responses. Thus, the company chose a three-day dosing regimen for the registration study.

We believe rigosertib's safety profile differentiates the drug from other MDS therapies in that data to date indicates bone marrow preservation, which is extremely beneficial in MDS patients. Upon examination of bone marrow cellularity, rigosertib-treated patients demonstrated no change in cellularity from pre-treatment over a long duration of treatment and with various administration schedules (Exhibit 9).

Exhibit 9: Bone Marrow Cellularity

Stage	Number of Patients (N)	Bone Marrow Cellularity (%)
Pre-Treatment	37	61
Follow-Up #1	37	68
Follow-Up #2	16	69
Follow-Up #3	11	64

Source: Company Reports

Compilation of data from all Phase I and II rigosertib studies (n=79) indicate that the drug is safe and well-tolerated. The most frequent adverse events, with incidence greater than 5% of patients, were nausea, diarrhea, fatigue, anemia, dysuria and hematuria. There were ten Grade 3 adverse events that included dysuria, fatigue, diarrhea, hematuria and pollakiuria (Exhibit 10).

Exhibit 10: Most Common Adverse Events

Adverse Event	Grade ≤2*	Grade≥3*
Nausea	9	0
Dysuria	7	2
Fatigue	7	2
Abdominal pain	6	0
Constipation	5	0
Decreased appetite	5	0
Diarrhea	6	2
Hematuria	6	1
Pollakiuria	1	3

*Data cutoff May 18, 2012
Source: Company Reports

Phase III study

The company is currently running a pivotal randomized, placebo-controlled, 89-site, "ONTIME" study in higher-risk MDS patients who failed prior azacitidine or decitabine therapy under a Special Protocol Assessment (SPA). The EMA also provided Scientific Advice, indicating that the study design should be adequate to support an MAA filing. The study is being conducted at 42 US sites and 47 EU sites. As of May 2013, 179 patients are enrolled at US sites. In this study, patients are required to have excess blasts (5-30% blasts) and have at least one cytopenia. Both groups of patients receive best supportive care. There is a 2:1 randomization in which two-thirds of the patients receive rigosertib plus best supportive care and one-third of patients receive only best supportive care. Rigosertib is administered IV (1800 mg daily dose) over three days and patients use an ambulatory pump to avoid hospitalization. The primary endpoint is overall survival and secondary objectives include evaluation of improvements in bone marrow and cytogenetic and blood profiles, quality of life scores and times to transition to AML. Patient enrollment of 270 patients was completed in May 2013. Powering assumptions include a total sample size of 270 patients (180 patients on drug, 90 patients on best supportive care), and 223 deaths to yield greater than 90% statistical power to detect a significant difference in overall survival between the two groups. A data safety monitoring board (DSMB) is monitoring the study at certain time points. So far, the DSMB has recommended the continuation of the study without change to the study protocol (Exhibit 11). We anticipate top-line overall survival data in 4Q13/1Q14.

Exhibit 11: DSMB Evaluation and Enrollment Data

Date of Review	Patients Analyzed	Patients Accrued	Results
February 2012	63	73	Continue without change
August 2012	142	153	Continue without change
March 2013	228	244	Continue without change
TBD	270+	270+	Final review analysis

Source: Company Reports

Lower-risk MDS- 1st-line (Oral)

Phase I data

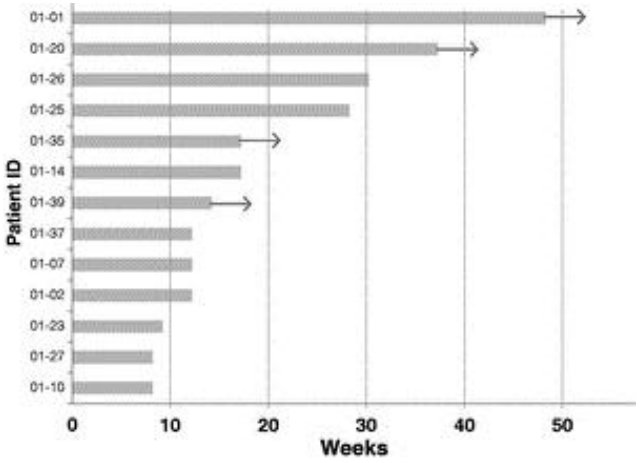
The company filed an IND in February 2009 and conducted a 37-patient Phase I study at two sites to evaluate the potential for rigosertib as an oral agent in lower-risk MDS patients. Dose escalation ranged from 70 mg BID to 700 mg BID with 560 mg BID as the recommended Phase II dose. Twenty-four patients were treated at this dose. Bioavailability was 14% to 35%. In higher-risk patients, there were two bone marrow CRs in RAEB-1 MDS patients who were both previously treated with azacitidine, one platelet and one ANC response. In the lower-risk population, there were four cases of transfusion independence and one erythroid response. These results are scheduled to be published in the British Journal of Hematology. Based on Phase I data, rigosertib

may have the potential to significantly reduce the need for transfusion in lower-risk MDS patients and improve their quality of life. As transfusion dependence involves risks and limitations, such as iron overload, infections, and immune reactions, we and the company believe that an oral therapy could lower or eliminate the need for transfusions.

Phase II studies

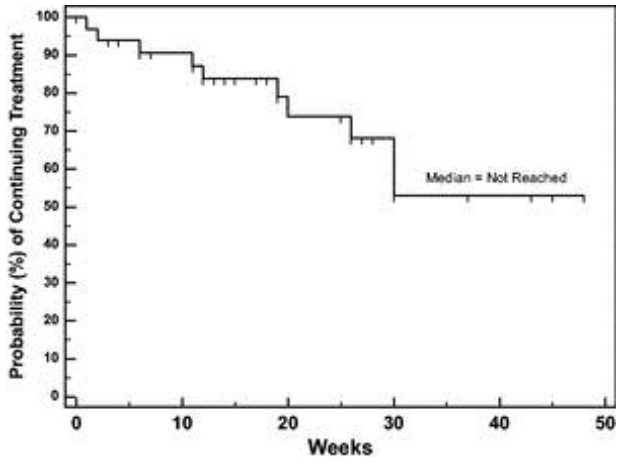
The company is running two Phase II studies in transfusion-dependent lower-risk MDS patients. The first study, ONTARGET, is an open-label, multi-center 60-patient study of patients who received at least four units of red blood cells during eight weeks prior to randomization and continue to receive transfusions and erythroid stimulating agents while in the study. The patients are randomized 1:1 to one of two dosing regimens, 50 mg BID for 14 consecutive days of a 21-day cycle (intermittent dosing arm) or 560 mg BID for 21 days (uninterrupted dosing arm). The primary endpoints are transfusion independence, defined as the lack of blood transfusion over 56 days (8 weeks), and safety. The company reported interim data on 34 patients at the June 2013 American Society for Clinical Oncology (ASCO) conference. There were 26 evaluable patients in the intermittent dosing arm and eight in the uninterrupted dosing arm. Thirteen of 26 patients in the intermittent dosing arm achieved transfusion independence lasting from eight to more than 48 weeks (Exhibit 12). Onset of independence ranged from one week to 24 weeks following initial dosing. Two patients remain independent after nine months. Two of eight evaluable patients in the uninterrupted dosing arm achieved independence. Full data will be presented at the 2013 American Society of Hematology (ASH) conference (December 7-10, 2013; New Orleans).

Exhibit 12: Transfusion Independence in Intermittent Dosing Arm



Source: Company Reports

Exhibit 13: Duration of Transfusion Independence in Intermittent Dosing Arm (n=34)



Source: Company Reports

Rigosertib was generally well tolerated. In the uninterrupted dosing arm, five of the first nine patients experienced drug-related urinary side effects of Grade 2 or higher. Accordingly, the study protocol was amended to allow all patients to be treated with the intermittent dosing regimen. Urinary urgency/frequency (38%), dysuria (18%) and hematuria (15%) were the most common urinary adverse events of Grade 2 or higher in the intermittent dosing arm. Several of the patients with dysuria reported improvements after they were administered oral hydration or sodium bicarbonate. Other adverse events of Grade 2 or higher included intermittent neutropenia (one Grade 3, one Grade 4) (Exhibit 13). The most frequent dose limiting toxicity was hematuria seen in two patients. Median onset of adverse events of Grade 2 or higher was 28 weeks and 12 weeks in the intermittent and uninterrupted dosing arms, respectively. Median duration of treatment in the intermittent dosing arm has not yet been determined because the study remains ongoing. Median duration of treatment in the uninterrupted dosing arm was 24 weeks. The company believes that the urinary adverse events are related to the dosing regimen and is exploring ways to mitigate or eliminate urinary symptoms via oral hydration and sodium bicarbonate and adjustment of dose and schedule.

Exhibit 13: Duration of Transfusion Independence in Intermittent Dosing Arm (n=34)

Symptom/Severity	Grade 2	Grade 3	Grade 4
Urinary urgency/frequency (1 SAE)	12	1	0
Dysuria	5	1	0
Hematuria/cystitis (4 SAEs in 3 patients)	0	5	0
Fatigue	5	0	0
Nausea	3	0	0
Intermittent neutropenia	0	1	1

Source: Raza et al. 2013 ASCO Annual Meeting and Company Reports

A second multi-center Phase II study was initiated in May 2013 in lower-risk, transfusion-dependent MDS patients who failed treatment with erythroid stimulating agents. All patients will receive the intermittent dosing schedule. The company anticipates completion of patient enrollment and data in 2H14.

Our outlook for rigosertib in the MDS setting

We view rigosertib as a validated, first-in-class, IV and oral therapy for the treatment of MDS. Its dual effect on tumor cell survival and cancer pathways allows the drug to have broad utility and seems to improve efficacy and reduce toxicity. Its unique mechanism of action as a PI3K and PLK inhibitor seems to spare normal cells and does not induce myelosuppression, which is conducive to MDS and a hallmark feature of this drug. We view the opportunity in higher-risk MDS as interesting given the 12 objective responses and 15 stable bone marrow responses with correlating median survival of 40 weeks seen in Phase II studies. We find data from the longer-term survivors in these studies as impressive, with 23 patients surviving at least six months, three patients surviving over two years and eleven patients surviving over one year. Importantly, given that there are no 2nd-line options available for patients who fail Vidaza or Dacogen, we view this pathway as low hanging fruit. The timelines provided by the company for the rigosertib registration studies could allow for 4Q14 NDA/MAA filings but we would not be surprised if this timing is conservative. We expect that a rigosertib NDA could receive priority review (8 months) with a potential approval by mid:15. We see meaningful potential for market expansion through the pursuit of the lower-risk MDS indication particularly given the advantages of oral therapy. Additionally, we believe the observed efficacy without meaningful myelosuppression supports the premise that rigosertib could have a differentiated product profile.

Exhibit 14: Rigosertib versus Approved Products

Attributes	Rigosertib	Marketed Products	Competition
Mechanism of action	Novel	Hypomethylating or Immunomodifier	Hypomethylating
Safety profile	No myelosuppression	Myelosuppression	Myelosuppression
Combination therapy	Yes	No	Unknown
IP protection	2026	Off patent	-

Source: Company reports and Janney Montgomery Scott LLC

We project that peak worldwide rigosertib sales in the higher- and lower-risk MDS settings could surpass $1.0 billion using a price point of $98,000/year and assuming meaningful market share is in the higher-risk setting. We estimate that approximately 13,000 and 75,000 patients in the US and EU, respectively, are affected by higher-risk and lower-risk MDS. With little to no competition in the higher-risk MDS arena, we believe rigosertib should enjoy significant market share (Exhibit 14). In the lower-risk setting, we do not view Vidaza as a competitive risk given its toxicity issues. Other competitors remain in early stages of development including Telik's Telintra (Phase II), Acceleron's sotatercept (Phase II) and Array's ARRY-614 (Phase I).

Metastatic pancreatic cancer overview

The American Cancer Society estimates that there will be approximately 45,220 new cases of pancreatic cancer in the US this year with 38,460 deaths expected, making pancreatic cancer fourth among cancer-related deaths. At diagnosis, 50% of pancreatic cancer patients already have metastasis, which represents over 80% of cases. The median survival for locally advanced and for metastatic disease is approximately ten months and six months, respectively. Standard of care is surgical resection of the tumor; however, only 15% of newly diagnosed patients are candidates for surgery, only about 20% survive to five years. The rest of the patients are eligible to receive gemcitabine or erlotinib (Tarceva). Treatment with gemcitabine provides a survival benefit of five and a half to six months over best supportive care while Tarceva provides a 6% increase in one-year survival rates. Fluorouracil and mitomycin-C, older cytotoxic drugs, are also approved for the treatment of pancreatic cancer. Unapproved combination therapies like FOLFIRINOX, a chemotherapy regimen, are becoming a part of standard care, particularly in patients with good performance status who can tolerate the toxic side effects.

Rigosertib in metastatic pancreatic cancer – 1st-line (IV)

Phase I data

The company filed an IND in December 2011 and conducted a two-site, 40-patient Phase I study that examined the efficacy and safety of rigosertib in combination with gemcitabine. Twenty-five patients had advanced pancreatic cancer and 15 had other tumors. Three out of 37 patients with measurable disease achieved partial response, including one with metastatic pancreatic cancer previously treated with gemcitabine, and a fourth patient with gemcitabine-naive pancreatic cancer had an unconfirmed partial response. Sixteen patients, including nine patients with metastatic pancreatic cancer, had an overall response of stable disease.

The most common adverse events, occurring in at least 10% of patients, were nausea, thrombocytopenia, fatigue, neutropenia, diarrhea, vomiting, anemia, leukopenia, pyrexia, constipation, abdominal pain, lymphopenia, aspartate transaminase increase, and decreased appetite. Twenty-two patients had drug-related adverse events of Grade 3 or greater, the most common of which were the hematological adverse events of neutropenia, thrombocytopenia, and lymphopenia.

Phase III study

The FDA reviewed the company's Phase I data and suggested that the company advance rigosertib as first-line therapy in a two-stage Phase III study in metastatic, chemo-naive pancreatic cancer patients. The company initiated the "ONTRAC" study, a multi-center, open-label, randomized, placebo-controlled study comparing a treatment combination of rigosertib IV and gemcitabine to a treatment with gemcitabine alone. Patients were randomized 2:1 to rigosertib plus gemcitabine (n=100) or gemcitabine alone (n=50). Primary endpoint is overall survival. The company completed patient enrollment of 150 patients in the first stage of the study in March 2013. Following 100 deaths, the DSMB will compare overall survival between the two arms of the study and will also review the adequacy of the proposed sample size. The DSMB may suggest stopping the study early or may suggest resizing the target enrollment for the second portion of the study beyond the initially planned 364 patients. We expect interim data in the first stage of the study in 4Q13/1Q14 followed by a Go/No Go decision. We believe that rigosertib will need to demonstrate at least equivocal results to Celgene's Abraxane data of a 1.8-month improvement in survival to be competitive on the efficacy front. As safety challenges exist for Abraxane plus gemcitabine, we believe rigosertib should demonstrate good tolerability in these pancreatic patients given its data set so far.

Head and neck cancer overview

There were approximately 52,000 cases of head and neck cancers in 2012, which represented about 3% of all new cancer cases in the US, according to the National Cancer Institute. Treatment of choice for 30% to 40% of patients with early-stage disease is surgery or radiation. Treatment for patients with locally or regionally advanced disease includes combined modality therapy with surgery, radiation or concurrent chemotherapy and radiation. Patients with advanced or recurrent disease are treated with platinum-based chemotherapy, cetuximab (Erbitux) or both in combination. Overall survival in patients with head and neck cancers who have failed platinum-based therapy is estimated at six months.

Rigosertib in head and neck cancers – 1st-line (oral)

Phase I data

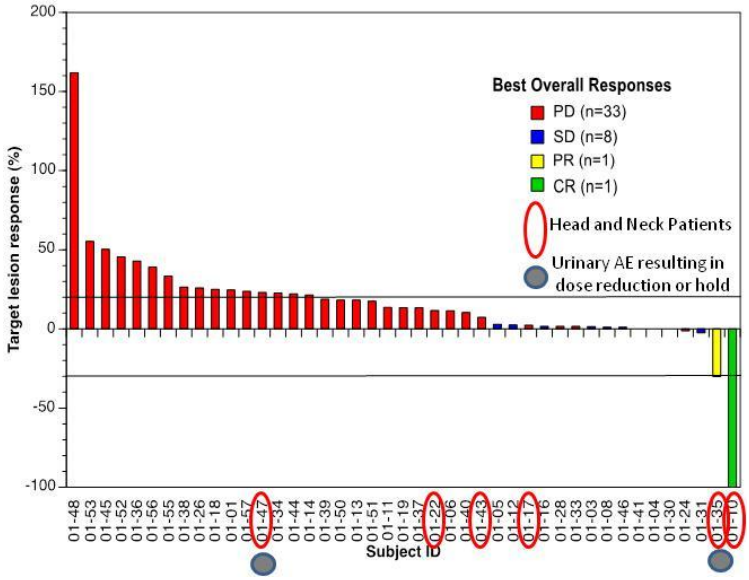
The company filed an IND amendment with the FDA for rigosertib in head and neck cancer in November 2012 and initiated a Phase I study with rigosertib in 48 patients with various advanced solid tumors refractory to standard therapy, including six patients with head and neck cancers who had previously failed on platinum-based therapy. Highlighting the best responses, there were eight stable diseases, one complete response and one partial response (Exhibit 15). Two of the six head and neck cancers patients achieved durable responses with one patient who experienced a confirmed complete response and one who had a partial response, with a 53% decrease of liver metastasis (Exhibit 16). Both patients remained on therapy for over 98 weeks and 48 weeks, respectively.

Exhibit 15: Best Responses in Phase I Study

Dose	Indication	Response	Duration of Response
70 mg	Ovarian carcinoma	Stable disease	36 weeks
70 mg	Ovarian carcinoma	Stable disease	12 weeks
140 mg	Pancreatic neuroendocrine	Stable disease	24 weeks
280 mg	Carcinoid tumor	Stable disease	20 weeks
280 mg	Head and neck cancer	Complete response	96+ weeks
560 mg	Adenoid cystic carcinoma	Stable disease	22 weeks
560 mg	Craniopharyngioma	Stable disease	12 weeks
560 mg	Head and neck cancer	Partial response	40 weeks
560 mg	Hepatocellular carcinoma	Stable disease	15 weeks
700 mg	Renal cell carcinoma	Stable disease	23 weeks

Source: Company reports and Janney Montgomery Scott LLC

Exhibit 16: Head and Neck Phase I Data



Source: Company reports and Janney Montgomery Scott LLC

Phase II study

Rigosertib oral is currently in a Phase II study in relapsed or metastatic squamous cell carcinoma, with a focus on enrolling patients with head and neck cancers. The study will evaluate both human papilloma virus (HPV) positive and HPV negative patients. The company expects to complete enrollment of 80 patients in 2H14.

Intellectual Property Portfolio

The company's intellectual property portfolio includes more than 100 issued patents and over 90 patent applications. These patents and licenses cover composition-of-matter, process, formulations and method-of-treatment claims for the clinical-stage product portfolio. As of May 6, 2013, the company owns or exclusively licenses 64 issued patents and 18 pending patent applications covering composition of matter, process, formulation and various indications for method-of-use for rigosertib filed worldwide, including five patents and three patent applications in the US. The company in-licensed the US composition of matter (COM) and

method-of-use (MOU) patents for rigosertib from Temple University and these patents expire in 2026 and 2025, respectively. We anticipate that rigosertib could be eligible for Hatch-Waxman extension. In addition, the company is likely working on life cycle management beyond the 2026 COM patent expiration but has not provided any details yet. For ON 013105, the company owns or exclusively licenses eight issued patents and five pending patent applications worldwide covering composition of matter, process, formulation and various indications for method-of-use. The US composition of matter patent for ON 013105 expires in 2025. For recilisib, the company owns exclusively licenses worldwide 43 issued patents and 38 pending patent applications covering composition of matter, formulation and various indications for method-of-use, including four patents and five patent applications in the US. The US composition of matter patent expires in 2020.

Collaborations

Baxter Healthcare SA in EU

In September 2012, the company entered into a European development and license agreement with a subsidiary of Baxter International Inc., Baxter Healthcare SA, granting Baxter an exclusive, royalty-bearing license for the research, development, commercialization and manufacture (in specified instances) of rigosertib in all therapeutic indications. Onconova is responsible for the development of rigosertib for MDS and pancreatic cancer. If Onconova does not choose to advance rigosertib for pancreatic cancer, Baxter may, at its own expense, develop rigosertib in this indication. This agreement also allows for expansion of the collaboration for additional indications. Baxter made a $50 million upfront payment following a $50 million equity investment (Series J convertible preferred stock) in July 2012. Onconova is eligible to receive up to $512.5 million in regulatory and development milestones (Exhibit 17), up to $250 million in commercial milestones and royalties in the range of low-teens to low-twenties.

Exhibit 17: Baxter EU Milestones

Development Milestones	**Total Amount: $512.5 Million**
Successful completion of Phase III higher-risk MDS study	$50 million
Advancement of rigosertib in Indication #2	$25 million
Advancement of rigosertib in Indication #3	$25 million
NDA filing for higher-risk MDS	$25 million
NDA filing for Indication #2	$25 million
NDA filing for Indication #3	$25 million
Regulatory Milestones	**Total Amount: $337.5 Million**
Approval in higher-risk MDS	>$100 million
Approval in Indication #2	>$100 million
Approval in Indication #3	>$100 million
Timing of regulatory approval in higher-risk MDS in EU	$20 million
Commercial Milestones	**Total Amount: $250.0 Million**
Royalties	**Total Amount: Low-teens to low-twenties on net sales on a country-by-country basis in the licensed territory**

Source: Company reports and Janney Montgomery Scott LLC

Royalties are paid until the later of the expiration of all valid claims of the patent rights licensed to Baxter that cover the manufacture, use, sale or importation of rigosertib in such country, and the expiration of regulatory-based exclusivity for rigosertib in such country. If the patent rights and regulatory-based exclusivity expire in a

particular country before a specified period of time after first commercial sale of rigosertib in that country, Baxter will pay Onconova royalties at a reduced rate until the end of the specified period. Royalty rates may be reduced depending on when Onconova receives marketing approval for IV use in MDS from the EMA or specified European Union countries without running additional specified studies and whether or not there is a competing product for refractory MDS approved within a specified period after rigosertib's approval for MDS. Onconova may end the agreement if Baxter brings up a patent challenge and Baxter may terminate the agreement without cause.

SymBio Pharmaceuticals LLC in Japan and Korea

In July 2011, Onconova entered into a development and commercialization agreement with SymBio Pharmaceuticals Limited allowing SymBio to develop and commercialize rigosertib in Japan and Korea. Onconova will supply SymBio with all products. In addition, SymBio has the right of first negotiation to license or obtain development and commercialization rights to compounds having a chemical structure similar to rigosertib in the licensed territory. To date, Onconova has received an upfront payment of $7.5 million and are eligible to receive milestone payments of up to $33.0 million upon the achievement of certain development and regulatory milestones for specified indications (Exhibit 18).

Exhibit 18: SymBio Milestones

Development Milestones	**Total Amount: $3 Million**
Completion of first patient enrollment in Phase III rigosertib plus gemcitabine study for pancreatic cancer in US	$3 million
Regulatory Milestones	**Total Amount: $30.0 Million**
US approval in higher-risk MDS (IV)	$5 million
Japan approval in higher-risk MDS (IV)	$3 million
US approval in lower-risk MDS (oral)	$5 million
Japan approval in lower-risk MDS (oral)	$5 million
US approval in pancreatic cancer (combination with gemcitabine)	$5 million
Japan approval in pancreatic cancer (combination with gemcitabine)	$3 million
Approval in US and Japan for additional specified indication of rigosertib	$4 million
Commercial Milestones	**Total Amount: $30.0 Million**
Royalties	**Total Amount: Mid-teens to 20% on net sales by SymBio in the licensed territory**

Source: Company reports and Janney Montgomery Scott LLC

The Leukemia and Lymphoma Society

In May 2010, the company entered into a funding agreement with The Leukemia and Lymphoma Society, in that the funds will be used to pay or reimburse clinical development expenses for rigosertib. Onconova retained ownership and control of all intellectual property. The company has received $8.0 million from LLS through 2012 and terminated the agreement in March 2013 and did not receive any funding from LLS this year. The company is required to make specified payments to LLS, including payments payable upon execution of the first out-license, first approval for marketing by a regulatory body, completion of the first commercial sale of rigosertib and reaching certain annual net sales levels. In addition, Onconova will pay LLS a single-digit percentage royalty of net rigosertib sales. The sum of payments to LLS is capped at three times the total funding received from LLS, or $24.0 million. Some of the company's obligations under the funding

agreement will remain effective until completion of specified milestones and payments to LLS (through March 2018). The company is required to report to LLS on its efforts and results with respect to continuing development of rigosertib and failure to do so would require the company to repay LLS the total amount of funding received.

GVK Biosciences Private Limited

The company formed a joint venture with GVK Biosciences Private Limited, contract research organization (CRO) based in India, to collaborate on the development of ON 1231320 and ON 108600 preclinical programs through IND submission or conducting proof of concept studies. GVK will make a monetary capital contribution in exchange for a 10% interest in the joint venture and Onconova will contribute a sub-license to the intellectual property related to the two programs in exchange for a 90% interest. GVK will be required to make additional capital contributions over time and its interest in the joint venture will increase up to 50%. At specified times, Onconova will be entitled to buy back the rights to either of these two programs from GVK.

Management Team

Ramesh Kumar, Ph.D. – Dr. Kumar is Co-founder, President and Chief Executive Officer of the company. Prior to this, he held positions in R&D or management at Princeton University, Bristol-Myers Squibb, DNX and Kimeragen, where he was President of the Genomics and Transgenics Division. He holds eight US patents and has numerous patent applications. He received his Ph.D. in Molecular Biology from the University of Illinois and trained at the National Cancer Institute.

Thomas J. McKearn, MD, Ph.D. – Dr. McKearn joined the company in September 2012 as President of R&D. He brings over 30 years of experience in drug development. Prior to joining, he was Vice President of Medical Affairs and Strategic Clinical Affairs at Agennix (formerly GPC Biotech) for the past 10 years where he was responsible for clinical and regulatory development strategies for new drugs through to product registration. Prior to that, he held several executive positions in biotech and pharmaceutical companies including Executive Director of Strategic Science and Medicine at Bristol-Myers Squibb. He founded Cytogen Corporation in 1981 and served as CEO. He received his MD and Ph.D. and post-doctoral training at the University of Chicago.

Ajay Bansal – Mr. Bansal joined the company in March 2013 as Chief Financial Officer. Prior to that, he served as CFO of Complete Genomics, and CFO and Executive Vice President of Corporate and Business Development at Lexicon Therapeutics and Tercica. Prior to that, he served as CFO of Nektar Therapeutics. He was also a partner at Mehta Partners, LLC, worked in strategy and marketing for Novartis Pharmaceuticals and held positions with leading consulting firms like McKinsey & Company. Mr. Bansal received his Master's degree in management and operations from Northwestern University.

James R. Altland – Mr. Altland serves as Senior Vice President of Finance and Corporate Development. Prior to that, he was a Partner of Tatum LLC. He also served as CFO of LifeTime Pharmaceuticals and NorthStar Research & Development, Ltd. Prior to that, he was President and CEO of JRA Consulting. He graduated from the University of Akron and is a retired CPA in Ohio.

Francois E. Wilhelm, MD, Ph.D. – Dr. Wilhelm serves as Chief Medical Officer and Senior Vice President at Onconova. He brings more than 20 years of clinical development experience in Europe with Hoffmann-La Roche and in the US with Fujisawa, Pfizer, Procter & Gamble, Akros Pharma and Johnson and Johnson. He received his Ph.D. in Endocrinology and a Master's degree in Biostatistics from the University of Paris.

Onconova Therapeutics (NASDAQ: ONTX)

Income Statement

(In thousands, except per share data)

	2011 A	For the Quarter Ending 3/31/12 A	For the Quarter Ending 6/30/12 A	For the Quarter Ending 9/30/12 A	For the Quarter Ending 12/31/12 A	2012 A	For the Quarter Ending 3/31/13 A	For the Quarter Ending 6/30/13 E	For the Quarter Ending 9/30/13 E	For the Quarter Ending 12/31/13 E	2013 E	2014 E
Revenue:												
Product Revenue	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Collaboration Revenue	227	113	130	42,530	3,220	45,993	1,116	1,091	1,091	1,091	4,389	1,050
Grant Revenue	1,260	85	-	-	-	197	-	-	-	-	-	-
Total Revenue	1,487	198	130	42,530	3,220	46,190	1,116	1,091	1,091	1,091	4,389	1,050
Cost of Product Sales	-	-	-	-	-	-	-	-	-	-	-	-
Gross Profit	1,487	198	130	42,530	3,220	46,190	1,116	1,091	1,091	1,091	4,389	1,050
Cost and Expenses:												
Research and Development	22,624	8,448	-	-	-	52,762	12,756	14,032	15,435	16,978	59,201	84,632
General and Administrative	6,436	2,460	-	-	-	15,707	3,346	3,513	3,689	3,873	14,422	17,106
Total Costs and Expenses	29,060	10,908	-	-	-	68,469	16,102	17,545	19,124	20,852	73,622	101,738
Operating Income (Loss)	(27,573)	(10,710)	130	42,530	3,220	(22,279)	(14,986)	(16,454)	(18,033)	(19,761)	(69,233)	(100,688)
Other Income (Expense):												
Interest Income (Expense)	(19)	(21)	-	-	-	(8,608)	-	19	27	33	79	(36)
Other	1,298	(68)	-	-	-	975	141	141	141	141	564	564
Loss Before Income Taxes	(26,294)	(10,799)	130	42,530	3,220	(29,912)	(14,845)	(16,294)	(17,865)	(19,586)	(68,590)	(100,160)
Income Taxes	-	-	-	-	1,127	-	-	-	-	-	-	-
Net Income	(26,294)	(10,799)	130	42,530	2,093	(29,912)	(14,845)	(16,294)	(17,865)	(19,586)	(68,590)	(100,160)
Less: Accretion of Redeemable Convertible Preferred	(4,020)	(1,231)	-	-	-	(3,953)	(1,019)	-	-	-	(1,019)	-
Net Income Applicable to Common Stockholders	$ (30,314)	$ (12,030)	$ 130	$ 42,530	$ 2,093	$ (33,865)	$ (15,864)	$ (16,294)	$ (17,865)	$ (19,586)	$ (69,609)	$ (100,160)
Basic Earnings Per Share	$ (10.64)	$ (4.15)	#DIV/0!	#DIV/0!	#DIV/0!	$ (11.51)	$ (1.03)	$ (1.05)	$ (0.84)	$ (0.91)	$ (3.77)	$ (4.61)
Diluted Earnings Per Share	$ (10.64)	$ (4.15)	#DIV/0!	#DIV/0!	#DIV/0!	$ (11.51)	$ (1.03)	$ (1.05)	$ (0.84)	$ (0.91)	$ (3.77)	$ (4.61)
Basic Shares Outstanding	2,849	2,897	-	-	-	2,942	15,448	15,548	21,389	21,489	18,468	21,739
Diluted Shares Outstanding	2,849	2,897	-	-	-	2,942	15,448	15,548	21,389	21,489	18,468	21,739
Effective Tax Rate	0.0%	0.0%	0.0%	0.0%	35.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
EBITDA Calculation:												
Loss Before Income Taxes	$ (26,294)	$ (10,799)	$ 130	$ 42,530	$ 3,220	$ (29,912)	$ (14,845)	$ (16,294)	$ (17,865)	$ (19,586)	$ (68,590)	$ (100,160)
Less: Interest Income	19	21	-	-	-	8,608	-	(19)	(27)	(33)	(79)	36
Plus: Depreciation & Amortization	316	-	-	-	-	319	98	88	88	88	362	328
EBITDA	$ (25,959)	$ (10,778)	$ 130	$ 42,530	$ 3,220	$ (20,985)	$ (14,747)	$ (16,225)	$ (17,804)	$ (19,532)	$ (68,308)	$ (99,796)
Margins:												
Gross	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
Operating	N/M	N/M	100.0%	100.0%	100.0%	N/M	N/M	N/M	N/M	N/M	N/M	N/M
Net Income (Loss)	N/M	N/M	100.0%	100.0%	65.0%	N/M	N/M	N/M	N/M	N/M	N/M	N/M
EBITDA	N/M	N/M	100.0%	100.0%	100.0%	N/M	N/M	N/M	N/M	N/M	N/M	N/M
Year-over-year Growth:												
Total Revenue						3006.3%	463.6%	739.2%	-97.4%	-66.1%	-90.5%	-76.1%
Operating Income						N/M	N/M	-12756.8%	-142.4%	-713.7%	N/M	N/M
Net Income (Loss)						N/M	N/M	-12633.5%	-142.0%	-1035.8%	N/M	N/M
Research and Development Expense						133.2%	51.0%	N/M	N/M	N/M	12.2%	43.0%
General and Administrative Expense						144.0%	36.0%	N/M	N/M	N/M	-8.2%	18.6%

Source: Company reports and Janney Montgomery Scott LLC estimates

IMPORTANT DISCLOSURES

Research Analyst Certification

I, Kimberly Lee, the Primarily Responsible Analyst for this research report, hereby certify that all of the views expressed in this research report accurately reflect my personal views about any and all of the subject securities or issuers. No part of my compensation was, is, or will be, directly or indirectly, related to the specific recommendations or views I expressed in this research report.

Janney Montgomery Scott LLC ("Janney") Equity Research Disclosure Legend

Onconova Therapeutics, Inc. currently is, or during the past 12 months was, a Janney Montgomery Scott LLC client. Janney Montgomery Scott LLC, provided investment banking related services.

Janney Montgomery Scott LLC currently acts as a market-maker in the securities of Onconova Therapeutics, Inc..

Janney Montgomery Scott LLC managed or co-managed a public offering of securities for Onconova Therapeutics, Inc. in the past 12 months.

Janney Montgomery Scott LLC received compensation for investment banking services from Onconova Therapeutics, Inc. in the past 12 months.

Janney Montgomery Scott LLC intends to seek or expects to receive compensation for investment banking services from Onconova Therapeutics, Inc. in the next three months.

The research analyst is compensated based on, in part, Janney Montgomery Scott's profitability, which includes its investment banking revenues.

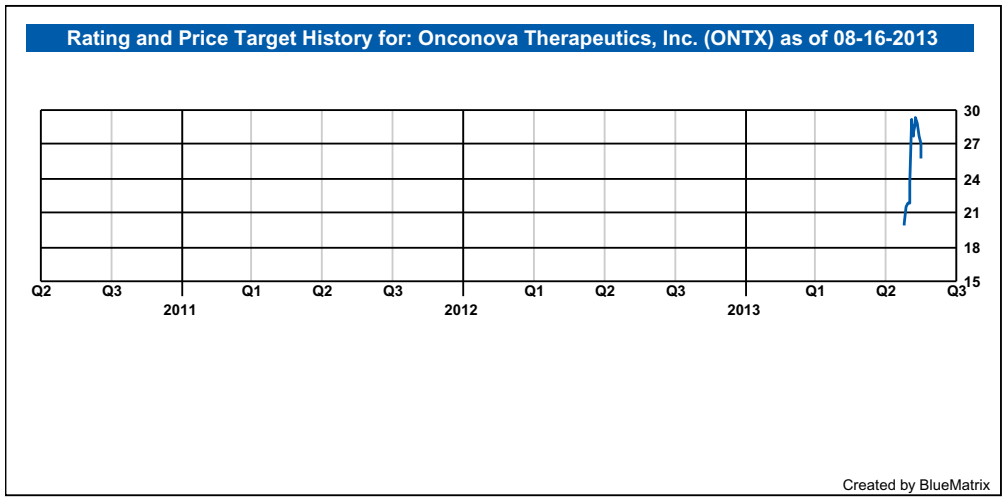
Definition of Ratings

BUY: Janney expects that the subject company will appreciate in value. Additionally, we expect that the subject company will outperform comparable companies within its sector.

NEUTRAL: Janney believes that the subject company is fairly valued and will perform in line with comparable companies within its sector. Investors may add to current positions on short-term weakness and sell on strength as the valuations or fundamentals become more or less attractive.

SELL: Janney expects that the subject company will likely decline in value and will underperform comparable companies within its sector.

Price Charts



Janney Montgomery Scott Ratings Distribution as of 6/30/13

			IB Serv./Past 12 Mos.	
Rating	**Count**	**Percent**	**Count**	**Percent**
BUY [B]	218	51.90	34	15.60
NEUTRAL [N]	198	47.14	21	10.61
SELL [S]	4	0.95	0	0.00

***Percentages of each rating category where Janney has performed Investment Banking services over the past 12 months.**

Other Disclosures

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Investment opinions are based on each stock's 6-12 month return potential. Our ratings are not based on formal price targets, however, our analysts will discuss fair value and/or target price ranges in research reports. Decisions to buy or sell a stock should be based on the investor's investment objectives and risk tolerance and should not rely solely on the rating. Investors should read carefully the entire research report, which provides a more complete discussion of the analyst's views. Supporting information related to the recommendation, if any, made in the research report is available upon request.

RESEARCH DEPARTMENT

Janney Capital Markets

Janney Montgomery Scott

Andrew Maddaloni, Director of Research

(215) 665-6234

TECHNOLOGY and MEDIA

Communications Equipment and IT Hardware

Bill Choi – Managing Director (212) 888-2524
Robert Simmons, CFA – Sr. Associate (646) 840-3219

Financial Technology

Thomas C. McCrohan – Managing Director (215) 665-6293
Leonard A. DeProspo, CFA Sr. Associate (215) 665-4559

Internet & Interactive Entertainment

Shawn C. Milne – Managing Director (415) 981-9539
Mike Carroll - Associate (617) 367-3278

Entertainment & Digital Media

Tony Wible, CFA – Managing Director (908) 470-3160
Murali Sankar, CFA – Sr. Associate (212) 888-2525

IT Outsourcing / BPO / Consulting

Joseph D. Foresi – Director (617) 557-2972
Jeffrey Rossetti – Associate (617) 557-2989

Software

Yun Kim - Managing Director (212) 940-6985
Alice Hur – Sr. Associate (646) 840-4606

CONSUMER and RETAIL

Casino Gaming and Lodging

Brian T. McGill – Managing Director (215) 665-6485
Tyler Batory – Associate (215) 665-4448

Food / Beverage / Tobacco

Jonathan Feeney, CFA – Managing Director (215) 665-6679
Mark Williams – Sr. Associate (215) 665-6358

Household & Personal Care

John San Marco – Vice President (646) 840-4607
Elizabeth Bland – Associate (215) 665-4574

Restaurants

Mark Kalinowski – Director (212) 940-6997
Amy Babington – Sr. Associate (646) 840-3207

Branded Apparel, Footwear, and Retail

Eric Tracy – Managing Director (202) 955-4340
Michael Karapetian – Sr. Associate (202) 955-4341

Hardline Retailers

David Strasser – Managing Director (646) 840-4609
Sarang Vora – Sr. Associate (646) 840-4605

Softline Retail – Specialty Apparel

Adrienne Tennant – Managing Director (202) 499-4493
Gabriella Carbone – Associate (202) 499-4494

FINANCIALS

Banks and Thrifts

Dave Peppard – Vice President (215) 665-6457

BDCs

John T. G. Rogers, CFA – Vice President (202) 955-4316

Consumer & Specialty Finance

Sameer Gokhale, CPA – Managing Director (646) 840-3215

Insurance

Robert Glasspiegel, CFA – Managing Director (860) 724-1203
Larry Greenberg, CFA – Managing Director (860) 724-1203
Ryan Byrnes – Vice President (860) 724-1203

INFRASTRUCTURE

Manufacturing Technology and Distribution

John Baliotti – Director (646) 840-3218

Industrial Services

Liam D. Burke – Managing Director (202) 955-4305

Water & Agriculture

Ryan M. Connors - Managing Director (215) 665-1359
Kenneth J. Dorell - Associate (215) 665-6439

Master Limited Partnerships

Suzanne Hannigan, CFA – Director (215) 665-4475

HEALTHCARE

Biotechnology

Kimberly Lee, DO – Managing Director (415) 229-7015

Life Sciences Technology

Paul Knight – Managing Director (646) 840-4616
Bryan Kipp - Associate (212) 888-2387

Medical Devices

Spencer Nam - Managing Director (617) 371-1529

Specialty Pharmaceuticals

Jim Molloy – Managing Director (617) 371-1528

ACCOUNTING & TAX POLICY

Forensic Accounting

Michael Gyure – Director (440) 364-7473

TECHNICAL ANALYSIS

Technical Strategy

Dan Wantrobski, CMT – Director (215) 665-4446

SUPERVISORY ANALYSTS

Richard Jacobs - Director (215) 665-6290
Irene H. Buhalo – Vice President (215) 665-6510
Holly Guthrie – Vice President (215) 665-1268