

Onconova Therapeutics

Clinical update

Pharma & biotech

ONTRAC stopped

Onconova has discontinued its Phase III ONTRAC trial of rigosertib (IV) in combination with gemcitabine (gem) vs gem alone as first-line treatment of pancreatic cancer, after the study failed a pre-planned interim analysis. We assigned no value to rigosertib in pancreatic cancer because of the specific challenges in this indication and hence the event does not change our valuation. This remains at \$476m, equivalent to \$22.3 per share basic (\$20.7/share, fully diluted), with our investment thesis centred on the potential of rigosertib in myelodysplastic syndromes (MDS). Top-line results from the ONTIME trial in high-risk MDS are due in Q114.

Year end	Revenue (\$m)	PBT* (\$m)	EPS* (\$)	DPS (\$)	P/E (x)	Yield (%)
12/11	1.5	(27.6)	(14.8)	0.0	N/A	N/A
12/12	46.2	(30.3)	(15.5)	0.0	N/A	N/A
12/13e	3.3	(68.5)	(8.9)	0.0	N/A	N/A
12/14e	50.0	(48.9)	(2.3)	0.0	N/A	N/A

Note: *PBT and EPS are normalised, excluding intangible amortisation, exceptional items and share-based payments.

ONTRAC study discontinued after futility analysis

The Phase III ONTRAC trial was designed to enrol 650 patients with an interim analysis at 150 patients. The interim analysis concluded that the combination was unlikely to offer an improvement in overall survival and thus continuation of the trial would be futile. This comes as no surprise as many similar combinations (a new drug plus gem) have failed in Phase III trials for pancreatic cancer, with the notable exceptions of FOLFIRINOX [oxaliplatin, irinotecan, fluorouracil, and leucovorin] and Abraxane. Furthermore, even if a modest benefit had been shown, further studies would be required because the standard of care has now moved to Abraxane/gem.

Focus remains on MDS – ONTIME data in Q114

The termination of ONTRAC should be a blessing in disguise, since it will allow Onconova to focus on rigosertib in its two most promising indications: higher-risk MDS for the IV and lower-risk MDS for the oral form. If rigosertib (IV) meets its primary endpoint in the ONTIME Phase III trial in higher-risk, second-line MDS in Q114, Onconova could file its first NDA next year. We believe the 270 plus-patient trial has a good chance of delivering a positive outcome, based on our analysis of Phase I and II data. Additional data reported at the 2013 American Society of Hematology (ASH) also further confirmed the drug's activity and safety.

Valuation: Unchanged at \$476m

Our risk-adjusted DCF valuation remains unchanged at \$476m, or \$22.3 per basic share (\$20.7/share, fully diluted), because we previously assigned no value to the pancreatic cancer indication. Hence, the fall in the share price in response to the ONTRAC discontinuation could represent a buying opportunity. The ONTIME top line data is the next major valuation inflection point, which if positive would add significant value to our model.

19 December 2013

Price US\$13.3 Market cap US\$285m

 Net cash (\$m) as at Dec 2013e
 99

 Shares in issue
 21.4m

 Free float
 21%

 Code
 ONTX

Primary exchange NASDAQ
Secondary exchange N/A

Share price performance



Business description

Onconova Therapeutics is a clinical-stage biopharmaceutical company focused on developing novel small molecule drug candidates to treat cancer. Its lead drug candidate, rigosertib, is partnered with Baxter (Europe) and SymBio (Japan/Korea) and is in Phase III trials for higherrisk MDS (IV form), and in Phase II for lower-risk MDS (oral form).

Next events

Rigosertib Phase III MDS top-line data Q114

Rigosertib NDA filling H214

Rigosertib (oral) MDS reg. path decision 2014

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Edison profile page



Onconova datasheet

Drug	Indication	on	Sta	tus	Notes				
Rigosertib		Higher-risk MDS after HMA (IV)		ase III top-line results Q11		Licensed to Baxter (total earnable payments of \$770m) for Europe,			
-		Lower-risk MDS (oral)		ase II final results at ASH		and SymBio (total earnable payments of \$71m) for Japan/Korea.			
	Refracto (oral)	Refractory head and neck cancer (oral)		ase II single arm, first pha 20 pts results: 2014	Onconova retains all rights elsewhere (including in the US). Temple University is entitled to 25% of sub-licence fees from Baxter and SymBio and a low single-digit royalty on net sales.				
ON 013105	Refracto	Refractory lymphoma, solid tumours		ase I (solid tumour)		Specific inhibitor of PLK2. Studies could resume in Q114.			
Recilisib	Acute ra	Acute radiation syndrome		Phase I ongoing Collaboration with the US Department of Defe cytopenia. Expected to be licensed out early.			radiation-induce		
Source: Ed	ison Investr	nent Research.	Notes: Only	clinical stage assets		,			
Exhibit 2:	Ongoing	rigosertib cl	inical trials						
Trial name	111111				Details	Details			
ONTIME (04-2	21) MDS, Vi failure	failure Q		Rig (CI, 3-d Q2W for eight cycles or Q4W after eight cycles) plus BSC vs BSC alone		290-pt Phase III, primary endpoint: OS. Start: Nov 2010; results: Q114			
ONTARGET (05)			Oral, 560mg	Oral, 560mg BID for two wks Q3W		60-pt Phase II, single arm, Primary endpoint: Units of blood cell transfusions at wk 8. Start: May 2012, results: Oct 2014			
09-08	MDS, Al	MDS, AML and CML O		Oral, various doses BID for three wks Q4W; plus Vidaza		40-pt Phase I/II, primary endpoints: safety. Trial start: Aug 2013. Results Aug 2015			
09-09	Squamous cell carcinoma, refractory		Oral, 560mg	Oral, 560mg BID for two wks Q3W		80-pt Phase II, primary endpoint: ORR; trial start: March 2013. Results: Sept 2015			
09-07				560mg BID for two wks Q3W		40 pt <u>Phase II</u> , primary endpoints: HI. Trial start: July 2013. Results: Jur 2015			
04-24 (ONTIME) MDS, failure after Vidaza or Dacogen, excess blasts		CI, 1,800mg/m² for three days Q2W (eight cycles) or Q4W (after eight cycles)			90 pt Phase IIIB, primary endpoint: relationship btw Bm response and survival. Start: Aug 2013. Results Dec 2015				
Ca	lison Invest	mant Dagger							
Source: Ed		ment Research	, Clinicaltrials	s.gov					
					ental drugs	for lower and higher-risk MI	os		
Exhibit 3:					ental drugs Route of admin.	for lower and higher-risk MI Selected relevant data in higher and lower-risk MDS	OS Reference		
	Company Celgene	MOA HMA	nent: appro	oved or developm	Route of	Selected relevant data in higher and			
Exhibit 3: Drug Vidaza (azaciditine) Dacogen	Competit	MOA HMA	nent: appro Main indication High risk	Status Approved in all major	Route of admin.	Selected relevant data in higher and	Reference		
Exhibit 3: Drug Vidaza	Company Celgene	MOA HMA	Main indication High risk MDS High risk MDS; elderly AML	Status Approved in all major countries Approved in US for MDS, EU for elderly	Route of admin. IV and SC	Selected relevant data in higher and lower-risk MDS Phase I, n=36 Int-2/high MDS failed Vidaza, 7/36 (19.4%) ORR, incl. 3mCR	N/A ASH 2013 Abs#2796		
Exhibit 3: Drug Vidaza (azaciditine) Dacogen (decitabine) Revlimid	Company Celgene Eisai/ Astex	MOA HMA HMA	Main indication High risk MDS High risk MDS; elderly AML Low risk, 5q-;	Approved in all major countries Approved in US for MDS, EU for elderly AML	Route of admin. IV and SC	Selected relevant data in higher and lower-risk MDS Phase I, n=36 Int-2/high MDS failed Vidaza, 7/36 (19.4%) ORR, incl. 3mCR and 2SD, med. OS 7.3 mos Phase II plus pred., n=25 low/Int-1, non-	N/A ASH 2013 Abs#2796 ASH 2013 Abs 1506		
Exhibit 3: Drug Vidaza (azaciditine) Dacogen (decitabine) Revlimid SGI-110	Company Celgene Eisai/ Astex Celgene Ostuka/	MOA HMA HMA IMiDs	Main indication High risk MDS High risk MDS; elderly AML Low risk, 5q-; MM New or ref.	Approved in all major countries Approved in US for MDS, EU for elderly AML Approved worldwide	Route of admin. IV and SC IV Oral	Phase I, n=36 Int-2/high MDS failed Vidaza, 7/36 (19.4%) ORR, incl. 3mCR and 2SD, med. OS 7.3 mos Phase II plus pred., n=25 low/Int-1, non-5q- MDS, 5/23 (22%) RBC TI n=93, 74 AML, 19 MDS, 2 CR, 1CRp and 2CRi in AML; 2mCR, 3 HI-E, 1 HI-N	N/A ASH 2013 Abs#2796 ASH 2013 Abs 1506 ASH 2013 Abs 1548		
Exhibit 3: Drug Vidaza (azaciditine) Dacogen (decitabine) Revlimid SGI-110 ARRY-614 Sapacitabine	Competiti Company Celgene Eisai/ Astex Celgene Ostuka/ Astex Array Biopharma Cyclacel Pharma	HMA HMA HMA IMiDs HMA p38 MAPK and	Main indication High risk MDS High risk MDS; elderly AML Low risk, 5q-; MM New or ref. MDS, AML Low/Int-1	Approved in all major countries Approved in US for MDS, EU for elderly AML Approved worldwide Phase II Phase II randomised	Route of admin. IV and SC IV Oral SC Oral, QD or BID Oral, QD or BID	Selected relevant data in higher and lower-risk MDS Phase I, n=36 Int-2/high MDS failed Vidaza, 7/36 (19.4%) ORR, incl. 3mCR and 2SD, med. OS 7.3 mos Phase II plus pred., n=25 low/Int-1, non-5q- MDS, 5/23 (22%) RBC TI n=93, 74 AML, 19 MDS, 2 CR, 1CRp and 2CRi in AML; 2mCR, 3 HI-E, 1 HI-N and 1 HI-P in MDS (prior HMA) n=62, 12/54 evaluable and 9/31 on drug >16 wks had HI n=63; 2 CR, 2 CRp, and 5 major HI; med. OS 8.6-9.7 mos	N/A ASH 2013 Abs#2796 ASH 2013 Abs 1506 ASH 2013 Abs 1548 ASH 2013 Abs 387		
Exhibit 3: Drug Vidaza (azaciditine) Dacogen (decitabine) Revlimid SGI-110 ARRY-614	Competitic Company Celgene Eisai/ Astex Celgene Ostuka/ Astex Array Biopharma Cyclacel	HMA HMA HMA IMiDs HMA p38 MAPK and Tie2 inhibitor Nucleoside	Main indication High risk MDS High risk MDS; elderly AML Low risk, 5q-; MM New or ref. MDS, AML Low/Int-1 MDS Elderly MDS	Approved in all major countries Approved in US for MDS, EU for elderly AML Approved worldwide Phase II	Route of admin. IV and SC IV Oral SC Oral, QD or BID Oral, QD or	Phase I, n=36 Int-2/high MDS failed Vidaza, 7/36 (19.4%) ORR, incl. 3mCR and 2SD, med. OS 7.3 mos Phase II plus pred., n=25 low/Int-1, non-5q- MDS, 5/23 (22%) RBC TI n=93, 74 AML, 19 MDS, 2 CR, 1CRp and 2CRi in AML; 2mCR, 3 HI-E, 1 HI-N and 1 HI-P in MDS (prior HMA) n=62, 12/54 evaluable and 9/31 on drug >16 wks had HI n=63; 2 CR, 2 CRp, and 5 major HI;	N/A ASH 2013 Abs#2796 ASH 2013 Abs 1506 ASH 2013 Abs 1548 ASH 2013 Abs 387 ASH 2013 Abs 2752		
Exhibit 3: Drug Vidaza (azaciditine) Dacogen (decitabine) Revlimid SGI-110 ARRY-614 Sapacitabine Clolar (clofarabine) Pracinostat	Company Celgene Eisai/ Astex Celgene Ostuka/ Astex Array Biopharma Cyclacel Pharma Sanofi/	HMA HMA HMA P38 MAPK and Tie2 inhibitor Nucleoside analogue second-gen nucleoside	Main indication High risk MDS High risk MDS; elderly AML Low risk, 5q-; MM New or ref. MDS, AML Low/Int-1 MDS Elderly MDS ref. to HMA rr ALL, AML	Approved in all major countries Approved in US for MDS, EU for elderly AML Approved worldwide Phase II Phase II randomised	Route of admin. IV and SC IV Oral SC Oral, QD or BID Oral, QD or BID	Selected relevant data in higher and lower-risk MDS Phase I, n=36 Int-2/high MDS failed Vidaza, 7/36 (19.4%) ORR, incl. 3mCR and 2SD, med. OS 7.3 mos Phase II plus pred., n=25 low/Int-1, non-5q-MDS, 5/23 (22%) RBC TI n=93, 74 AML, 19 MDS, 2 CR, 1CRp and 2CRi in AML; 2mCR, 3 HI-E, 1 HI-N and 1 HI-P in MDS (prior HMA) n=62, 12/54 evaluable and 9/31 on drug >16 wks had HI n=63; 2 CR, 2 CRp, and 5 major HI; med. OS 8.6-9.7 mos Phase II w/ cytarabine, n=29, 8/24 (33%) CR/CRp/mCR, 4/24 (17%) had SD, med. OS 4.8 mos In pilot Phase II, MDS, w/aza, 7/9	N/A ASH 2013 Abs#2796 ASH 2013 Abs 1506 ASH 2013 Abs 1548 ASH 2013 Abs 387 ASH 2013 Abs 2752 ASH 2013 Abs		
Exhibit 3: Drug Vidaza (azaciditine) Dacogen (decitabine) Revlimid SGI-110 ARRY-614 Sapacitabine Clolar (clofarabine) Pracinostat (SB939) Telintra	Competitic Company Celgene Eisai/ Astex Celgene Ostuka/ Astex Array Biopharma Cyclacel Pharma Sanofi/ Genzyme MEI	HMA HMA HMA P38 MAPK and Tie2 inhibitor Nucleoside analogue second-gen nucleoside analogue	Main indication High risk MDS High risk MDS; elderly AML Low risk, 5q-; MM New or ref. MDS, AML Low/Int-1 MDS Elderly MDS ref. to HMA rr ALL, AML etc New AML	Approved in all major countries Approved in US for MDS, EU for elderly AML Approved worldwide Phase II Phase II randomised Approved for rr ALL	Route of admin. IV and SC IV Oral SC Oral, QD or BID Oral, QD or BID IV daily x5	Selected relevant data in higher and lower-risk MDS Phase I, n=36 Int-2/high MDS failed Vidaza, 7/36 (19.4%) ORR, incl. 3mCR and 2SD, med. OS 7.3 mos Phase II plus pred., n=25 low/Int-1, non-5q-MDS, 5/23 (22%) RBC TI n=93, 74 AML, 19 MDS, 2 CR, 1CRp and 2CRi in AML; 2mCR, 3 HI-E, 1 HI-N and 1 HI-P in MDS (prior HMA) n=62, 12/54 evaluable and 9/31 on drug >16 wks had HI n=63; 2 CR, 2 CRp, and 5 major HI; med. OS 8.6-9.7 mos Phase II w/ cytarabine, n=29, 8/24 (33%) CR/CRp/mCR, 4/24 (17%) had SD, med. OS 4.8 mos In pilot Phase II, MDS, w/aza, 7/9	Reference N/A ASH 2013 Abs#2796 ASH 2013 Absi 1506 ASH 2013 Absi 1548 ASH 2013 Absi 2752 ASH 2013 Absi 2752 ASH 2013 Absi 2752 ASH 2013 Absi 1525 ASH 2012		
Exhibit 3: Drug Vidaza (azaciditine) Dacogen (decitabine) Revlimid SGI-110 ARRY-614 Sapacitabine	Competitic Company Celgene Eisai/ Astex Celgene Ostuka/ Astex Array Biopharma Cyclacel Pharma Sanofi/ Genzyme MEI Pharma	HMA HMA HMA HMA HMA HMA P38 MAPK and Tie2 inhibitor Nucleoside analogue second-gen nucleoside analogue HDAC inhibitor Glutathione S-	Main indication High risk MDS High risk MDS; elderly AML Low risk, 5q-; MM New or ref. MDS, AML Low/Int-1 MDS Elderly MDS ref. to HMA rr ALL, AML etc New AML and MDS Lower risk	Approved in all major countries Approved in US for MDS, EU for elderly AML Approved worldwide Phase II Phase II Phase II randomised Approved for rr ALL	Route of admin. IV and SC IV Oral SC Oral, QD or BID Oral, QD or BID IV daily x5 Oral, thrice weekly (TIW)	Selected relevant data in higher and lower-risk MDS Phase I, n=36 Int-2/high MDS failed Vidaza, 7/36 (19.4%) ORR, incl. 3mCR and 2SD, med. OS 7.3 mos Phase II plus pred., n=25 low/Int-1, non-5q-MDS, 5/23 (22%) RBC TI n=93, 74 AML, 19 MDS, 2 CR, 1CRp and 2CRi in AML; 2mCR, 3 HI-E, 1 HI-N and 1 HI-P in MDS (prior HMA) n=62, 12/54 evaluable and 9/31 on drug >16 wks had HI n=63; 2 CR, 2 CRp, and 5 major HI; med. OS 8.6-9.7 mos Phase II w/ cytarabine, n=29, 8/24 (33%) CR/CRp/mCR, 4/24 (17%) had SD, med. OS 4.8 mos In pilot Phase II, MDS, w/aza, 7/9 (CR+CRi+PR) incl 7 CR n=38 low/Int-1 MDS, 11 of 38 (29%) had	Reference N/A ASH 2013 Abs#2796 ASH 2013 Absi 1506 ASH 2013 Absi 1548 ASH 2013 Absi 2752 ASH 2013 Absi 1525 ASH 2013 Absi 2752 ASH 2013 Absi 1525 ASH 2014 ASH 2012 ASH 2012 ASH 2012 ASH 2012		
Exhibit 3: Drug Vidaza (azaciditine) Dacogen (decitabine) Revlimid SGI-110 ARRY-614 Sapacitabine Clolar (clofarabine) Pracinostat (SB939) Telintra (TLK199) Oral azaciditine	Competitic Company Celgene Eisai/ Astex Celgene Ostuka/ Astex Array Biopharma Cyclacel Pharma Sanofi/ Genzyme MEI Pharma Telik	HMA HMA HMA HMA HMA HMA P38 MAPK and Tie2 inhibitor Nucleoside analogue second-gen nucleoside analogue HDAC inhibitor Glutathione S-transferase Inh.	Main indication High risk MDS High risk MDS; elderly AML Low risk, 5q-; MM New or ref. MDS, AML Low/Int-1 MDS Elderly MDS ref. to HMA rr ALL, AML etc New AML and MDS Lower risk MDS Maintenance Rx in AMLw/	Approved in all major countries Approved in US for MDS, EU for elderly AML Approved worldwide Phase II Phase II Phase II randomised Approved for rr ALL Phase II	Route of admin. IV and SC IV Oral SC Oral, QD or BID Oral, QD or BID IV daily x5 Oral, thrice weekly (TIW) Oral	Selected relevant data in higher and lower-risk MDS Phase I, n=36 Int-2/high MDS failed Vidaza, 7/36 (19.4%) ORR, incl. 3mCR and 2SD, med. OS 7.3 mos Phase II plus pred., n=25 low/Int-1, non-5q-MDS, 5/23 (22%) RBC TI n=93, 74 AML, 19 MDS, 2 CR, 1CRp and 2CRi in AML; 2mCR, 3 HI-E, 1 HI-N and 1 HI-P in MDS (prior HMA) n=62, 12/54 evaluable and 9/31 on drug >16 wks had HI n=63; 2 CR, 2 CRp, and 5 major HI; med. OS 8.6-9.7 mos Phase II w/ cytarabine, n=29, 8/24 (33%) CR/CRp/mCR, 4/24 (17%) had SD, med. OS 4.8 mos In pilot Phase II, MDS, w/aza, 7/9 (CR+CRi+PR) incl 7 CR n=38 low/Int-1 MDS, 11 of 38 (29%) had HI-E; 3 of 11 (27%) had TI n=53 low/Int-1 MDS; 18/53 (34%) ORR, 13/53 (24.5%) HI, 12/30 (40%) TI>56 d,	Reference N/A ASH 2013 Abs#2796 ASH 2013 Absi 1506 ASH 2013 Absi 1548 ASH 2013 Absi 387 ASH 2013 Absi 2752 ASH 2013 Absi 2752 ASH 2013 Absi 1525 ASH 2012 ABS# 3821 Cancer. 2012, 118:2138-2147 ASH 2012 Absi		



	\$m 2011	2012	2013e	2014
·	IFRS	IFRS	IFRS	IFR
PROFIT & LOSS				
Revenue	1.5	46.2	3.3	50
Cost of Sales	0.0	0.0	0.0	0
Gross Profit	1.5	46.2	3.3	50
EBITDA	(27.9)	(44.7)	(77.8)	(58.
Operating Profit (before amort. and except.)	(27.6)	(22.3)	(69.0)	(50.
Intangible Amortisation	0.0	0.0	0.0	0
Exceptionals	1.3	0.4	(0.1)	(0.
Other	0.0	0.6	0.5	1
Operating Profit	(26.3)	(21.3)	(68.5)	(49.
Net Interest	(0.0)	(8.6)	0.0	0
Profit Before Tax (norm)	(27.6)	(30.3)	(68.5)	(48.
Profit Before Tax (FRS 3)	(26.3)	(29.9)	(68.5)	(49.
Tax	0.0	0.0	0.4	0
Profit After Tax (norm)	(27.6)	(30.3)	(68.1)	(48.
Profit After Tax (FRS 3)	(26.3)	(29.9)	(68.1)	(49.
Average Number of Shares Outstanding (m)	2.14	2.21	7.97	22.0
EPS - normalised (\$)	(14.79)	(15.51)	(8.86)	(2.3
EPS - normalised fully diluted (\$)	(14.79)	(15.51)	(8.86)	(2.3
EPS - (IFRS) (\$)	(12.30)	(13.55)	(8.54)	(2.2
Dividend per share (c)	0.0	0.0	0.0	, 0
Gross Margin (%)	100.0	100.0	100.0	100
EBITDA Margin (%)	(1877.3)	(96.7)	(2339.8)	(117.
Operating Margin (before GW and except.) (%)	(1877.3)	(48.2)	(2075.9)	(100.
	(1034.3)	(40.2)	(2013.3)	(100.
BALANCE SHEET			(a. ()	
Fixed Assets	0.6	0.6	(0.1)	1
Intangible Assets	0.0	0.0	0.0	0
Tangible Assets	0.6	0.6	(0.1)	1
Investments	0.0	0.0	0.0	0
Current Assets	3.8	83.3	105.9	59
nventory	0.0	0.0	0.0	C
Accounts recievable, net	0.0	0.0	0.0	
Cash and cash equivalents	2.7	81.5	99.0	59
Other	1.1	1.7	6.8	
Current Liabilities	(12.1)	(25.4)	(17.4)	(21.
Creditors	(12.1)	(25.4)	(17.4)	(21
Short term borrowings	0.0	0.0	0.0	0
Long Term Liabilities	(10.8)	(15.5)	(14.1)	(14.
Deferred revenue, long term	(10.7)	(15.4)	(14.0)	(14.
Other long term liabilities	(0.1)	(0.0)	(0.0)	(0.
Net Assets	(18.4)	43.0	74.3	25
CASH FLOW				
Operating Cash Flow	(14.2)	1.6	(62.5)	(39.
Net Interest	(0.0)	0.0	0.0	(1.0
Tax	0.0	0.0	0.0	(
Capex	(0.2)	(0.3)	(0.6)	(0
Acquisitions/disposals	0.0	0.0	0.0	(0
Financing	9.8	77.5	79.7	(
Dividends	0.0	0.0	0.0	(
Net Cash Flow	(4.6)	78.8	16.5	(39
Opening net debt/(cash)	(7.3)	(2.7)	(81.5)	(99
HP finance leases initiated	0.0	0.0	0.0	(55)
Other	0.0	0.0	1.0	(1
Closing net debt/(cash)	(2.7)	(81.5)	(99.0)	(59
olooling not debutodail)	(4.1)	(01.0)	(33.0)	(33



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