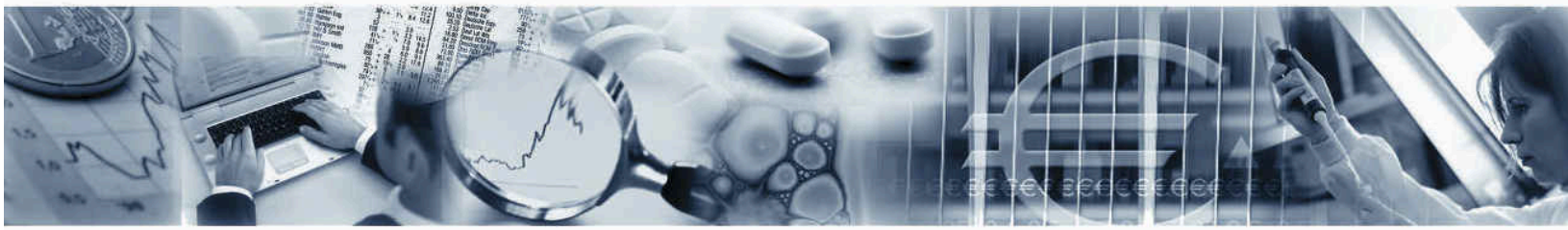


Update Report

Onconova Therapeutics Inc. (ONTX)

Moving Toward Key Milestones

Chief Research Analyst

Marcel Wijma MSc

+1 (917) 460 6185 (US)

+31 (6) 1848 4204 (NL)

m.wijma@leeuwenhoeck.com

http://www.leeuwenhoeck.com

Date: 28 September 2018

Name:	**Onconova Therapeutics**
Country:	**USA**
Price:	**USD 7.20**
ISIN Code:	**US68232V3069**
Reuters Code:	**ONTX**
Market Cap (USD m):	**40.8**
EV (USD m):	**16.8**
Cash & cash eq. (USD m):	**24.0**
Shares outstanding (m):	**5.67*)**
Volume:	**98,801**
Free float:	**95%**
52-week Range:	**0.33-2.83**

***) The company announced a 1:15 reverse stock split**

	2016A	2017A	2018E
Total Revenues	5.546	0.787	2.000
Net (Loss)/Profit	(19.667)	(24.092)	(22.000)
Net loss per share	(4.44)	(2.68)	(0.26)
R&D costs	20.071	19.119	17.000
Cash increase/(decrease)	1.601	(17.426)	16.000
Cash and marketable sec.	21.450	4.024	20.024

Executive Summary

- Onconova Therapeutics (ONTX) is a late stage biopharmaceutical company with a focus on the development of innovative small molecule drugs to treat cancer. Its lead product is a small molecule called rigosertib that is currently in Phase III development as a second line treatment for higher risk myelodysplastic syndromes (HR-MDS). An oral version of rigosertib in combination with Celgene's Vidaza successfully concluded a Phase II trial and a pivotal Phase III trial for first-line MDS is expected to commence in 2019.

- Myelodysplastic Syndromes (MDS) are a group of diverse bone marrow disorders in which the bone marrow does not produce enough healthy blood cells. MDS is often referred to as a "bone marrow failure disorder". In addition, for roughly 30% of the patients diagnosed with MDS, this type of bone marrow failure syndrome will progress to acute myeloid leukemia (AML). To date, more than 1,300 patients have been enrolled in clinical trials with rigosertib. Orphan designation has been granted for rigosertib in MDS in the U.S., Europe and Japan.

- In 2019H2, the company expects to announce the top-line data for the pivotal Phase III INSPIRE study, which will be available after 288 death events. The total enrollment is expected to be 360 patients. Other milestones that can be expected in the coming 3-12 months are the possible presentation of the updated efficacy data of its Phase II combination study in MDS at ASH in December, the submission for the Phase III trial in MDS for the combination program and upcoming partnerships.

- The company has a strong IP position for rigosertib in key regions like the US, Japan and Europe. In each of these territories, Onconova also has orphan designation for rigosertib in MDS. Efforts are in place to obtain additional coverage with patents filed worldwide including in non-PCT countries like Taiwan and Latin America.

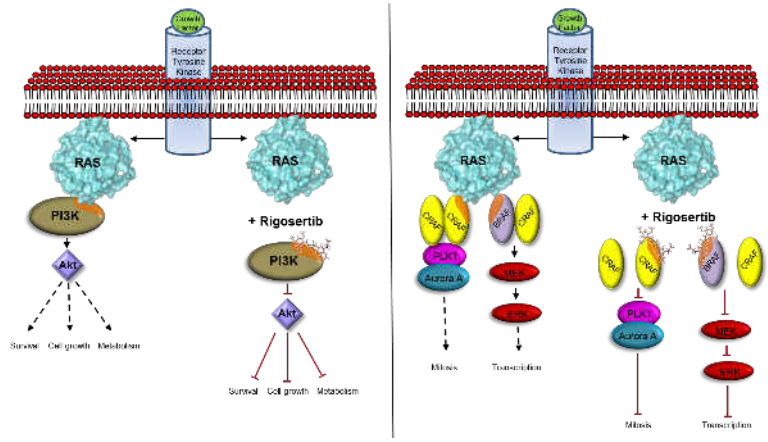
- Recently, the company announced a 1:15 reversed stock split which will bring the total outstanding shares to 5.67 million from 85.1 million shares. The Company's current cash position after the cash burn in 2018Q2, is USD 29.5 million. With a current quarterly cash burn of USD 5.5 million, we believe that this should be sufficient to carry out the further development of its pipeline in the coming 12-15 months. Furthermore, we expect the company will be able to sign important partnering deals towards the topline data from the Phase III INSPIRE trial with rigosertib.

- **Based on NPV based valuation, we believe that Onconova Therapeutics is substantially undervalued at the current share price of USD 7.20. Following the increase in pricing of new blood cancer drugs, we have adjusted our model upwards which leads to a value of or USD 62.50 per share. This represents a substantial upside from the current share price.**

Company Profile

Onconova Therapeutics is an international biopharmaceutical company that is developing novel medicines for indications for which there are no existing or only inadequate therapies. With its proprietary chemistry platform, the company has built a late stage pipeline of targeted anti-cancer drugs based on specific cellular pathways while simultaneously causing minimal damage to normal cells.

The company's late stage clinical programs are focused on the high risk myelodysplastic syndrome (MDS). Its lead drug candidate, rigosertib (IV), is in Phase III trial for higher-risk MDS and an oral form of the drug has concluded Phase II for lower-risk MDS. Rigosertib is a small molecule that inhibits cellular signaling in cancer cells by acting as a Ras mimetic. Ras proteins function as binary molecular switches that control intracellular signalling networks (see graph below). Mutations or overexpression of RAS genes can lead to the production of permanently activated RAS proteins which can lead to cancer. The three genes in humans (HRAS, KRAS and NRAS) are the most commonly mutated in 20-25% of all human tumors and up to 90% in certain types of cancer. That makes Onconova' s platform applicable in multiple indications.



Investigations to understand the critical biochemical and biological mechanisms of Ras function are

at the forefront of cancer research. Studies have shown that Ras interacts with a large number of effector proteins by a highly conserved mechanism that involves the switch region of Ras and the Ras-binding domains (RBDs) of its effector proteins. Because these interactions play an essential role in oncogenic Ras function, inhibiting them constitutes an attractive and important therapeutic approach for myeloid neoplasias and other cancers.

Based on new mechanism of action data published last year, Onconova is initiating a collaborative development program focusing on a group of rare diseases with a well-defined molecular basis in expression or defects involving the Ras Effector Pathways. Since "RASopathies" are rare diseases affecting young children, the company is setting up a multifaceted collaborative program involving patient advocacy, government and academic organizations. The RASopathies are a group of rare diseases which share a well-defined molecular basis in expression or defects involving Ras Effector Pathways. They are usually caused by germline mutations in genes that alter the RAS subfamily and mitogen-activated protein kinases that control signal transduction and are among the most common genetic syndromes. Together, this group of diseases can impact more than 1 in 1000 individuals, according to RASopathiesNet.

Recent Partnerships

In March 2018, Onconova entered into an exclusive license agreement with Swiss biotech company Pint Pharma GmbH to commercialize rigosertib in Latin America. In exchange for these rights, Pint made an investment totaling up to USD 2.5 million by purchasing shares at a premium to market. In addition, Pint Pharma will make additional regulatory, development and sales-based milestone payments to Onconova of up to USD 42.75 million and pay double digit tiered royalties on net sales in Latin America. Onconova will supply the finished product for sale in the licensed territories. In August, Onconova announced that Pint Pharma will assist in expanding the clinical trials for rigosertib in Latin America.

In the coming 6-12 months we expect the company to announce larger partnerships in other territories like Europe and certain Asian countries.

Update Pipeline: Focus on Rigosertib

Below is an overview of Onconova's clinical pipeline. Onconova's lead product is a small molecule called rigosertib that is currently in Phase III development as a second line treatment for higher risk myelodysplastic syndromes (HR-MDS). Earlier this year, the company decided to move forward with the Phase III INSPIRE trial following a very promising interim analysis. The independent Data Monitoring Committee recommended that the trial continue with an expansion in enrollment to 360 patients based on a pre-planned sample size re-estimation.

A first line oral version of rigosertib in combination with azacitidine in HR-MDS also showed positive Phase II data as well and is expected to be in a pivotal phase III trial in 2018Q4.

Disease	Formulation	Indication	Stage	Expected Timelines	Potential Market Opportunity (US)/Benefit	
MDS*	Intravenous	HR-2nd line. No approved product following HMA failure	Phase 3	Interim analysis completed Phase 3 completion 2019	~5,000 patients	No directly competing FDA approved product in the market
	Oral	HR-1st line In combination with AZA	Phase 2	Phase 3 protocol, SPA process, in 2018	~18,000	No oral NCE approved since 2005
	Oral	Lower Risk	Phase 2	Select patient population in 2018	>10,000	Longer potential duration of treatment
RASopathies^	Intravenous and oral	JMML/other Ras Pathway diseases	Phase 1	• NIH CRADA signed • Proof of concept in 2019	Rare disease	Pediatric clinical trial

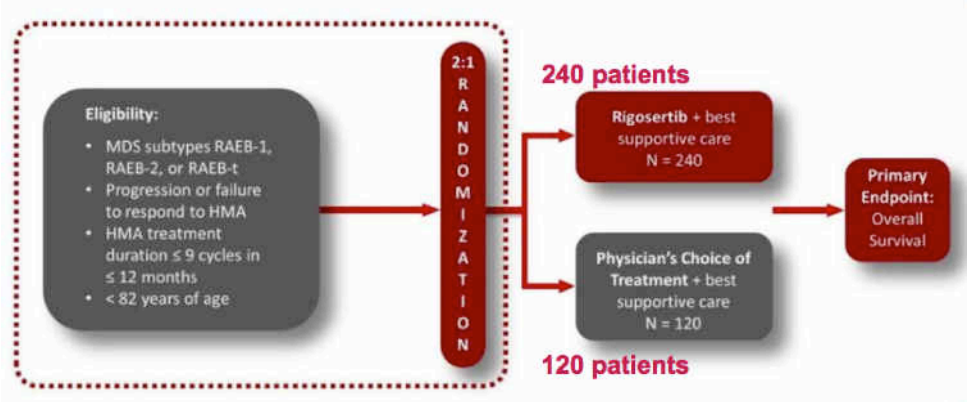
Source: Onconova Therapeutics

Rigosertib in development as second line treatment for HR-MDS

Onconova's most advanced therapy in development is IV rigosertib as second line treatment for patients with HR-MDS after failing hypomethylating agent therapy (HMA). The **IN**ternational **S**tudy of **P**hase III **I**V **R**igos**E**rtib, or INSPIRE, is based on guidance received from the FDA and European Medicines Agency and derives from the findings of the previous ONTIME Phase III trial. INSPIRE is a multi-center, randomized controlled study to assess the efficacy and safety of IV rigosertib in HR-MDS patients under 82 years of age who had progressed on, or failed to respond to, or relapse

after previous treatment with HMAs within the first nine cycles of initiation of HMA treatment. The trial initially enrolled approximately 225 patients randomized at a 2:1 ratio into two treatment arms: IV rigosertib plus Best Supportive Care versus Physician's Choice plus Best Supportive Care.

Beginning of this year, following a very promising interim analysis, the DMC recommended continuation of the trial with a one-time expansion in enrollment to 360 patients, using a pre-planned sample size re-estimation, consistent with the Statistical Analysis Plan (SAP). We expect full enrollment of the expanded trial very soon. The INSPIRE pivotal trial is studying intravenously-administered (IV) rigosertib in patients with higher-risk myelodysplastic syndromes (MDS) who have progressed on, failed to respond to, or relapsed after prior hypomethylating agent (HMA) therapy. The Company remains blinded to the interim analysis results. Currently, the INSPIRE study is active at approximately 175 trial sites in 23 countries across four continents and has almost reached full enrollment. In Japan, patients have been enrolled to this study by SymBio Pharmaceuticals, its collaboration partner for Japan and Korea. Onconova believes that this trial is the most advanced study for a new therapeutic agent in this indication, and there are no FDA approved therapies specifically for MDS patients after failure of front-line HMAs. Top line results are to be performed after 288 events which can be achieved in 2019H1/2. The company expects that more than 70% of the patients in the trial are part of the very high risk subgroup.



INSPIRE Phase III trial results expected in 2019H1/H2

Oral Rigosertib in combination with Azacitidine as first line therapy in HR-MDS

Onconova is also developing an oral version of rigosertib as a first line treatment in HR-MDS patients in combination with azacitidine. In 2015, Azacitidine was approved in Europe as a single agent therapy for elderly AML patients, as many members of this population cannot endure commonly used intensive chemotherapy. This approval provides a clear regulatory path for combination studies in elderly AML. While the continuous infusion (CI) schedule is acceptable in the higher-risk MDS population, especially for second-line patients, such a schedule would not be favoured in less advanced disease settings such as lower-risk MDS and most solid tumours. For this reason, Onconova has also developed an oral formulation of rigosertib.

Oral rigosertib has been developed as a single agent and in combination with azacitidine. Previous studies have demonstrated that Low-Risk (LR) MDS patients with intermittent oral rigosertib treatment at a dose of 560 mg BID show a transfusion independence rate (TI), as defined by the IWG 2006 criteria, of 44%[1]. Oral rigosertib in combination with AZA is being studied in patients with Higher-risk (HR) MDS. Initial results of the Phase II study with oral rigosertib (840 mg /day 3 out of 4 weeks) in combination with azacitidine in patients with MDS demonstrated an overall response rate of 76%; 62% in patients following hypomethylating agent (HMA) failure; and 85% in HMA naïve patients[2]. In both single agent and combination studies, oral rigosertib has been associated with hematuria in a subset of patients which has been shown to be dose and administration scheme dependent[3].The results reported here are from a dose exploration study in HR MDS patients with an increased oral rigosertib dose (1120 mg/day 3 out of 4 weeks) and focus on the impact of risk-mitigation strategies in minimizing the incidence of urinary adverse events (UAEs); including hematuria. An additional 45 patients were enrolled in the expanded Phase II trial at the increased dose to determine the optimal efficacy and safety.The mitigation strategies

1 Raza,et al, Blood 2017 130:1689

2 Navada et al, EHA, 2017

3 Garcia-Manero G,Blood 2016 128:2011

included prescribing the second dose of rigosertib earlier in the day and encouraging bladder emptying at bedtime.

We expect the company to present the updated efficacy and safety data at ASH in San Diego in December this year.

Response Criteria	Response per IWG 2006	
	No prior HMA (N=20)	HMA resistant (N=13)
Complete Remission*	**7 (35%)**	**1 (8%)**
Marrow CR + Hematologic Improvement (HI)	6 (30%)	4 (31%)
Marrow CR alone	3 (15%)	3 (23%)
Stable Disease	3 (15%)	5 (38%)
Overall IWG Response	**17 (85%)**	**8 (62%)**

At the EHA in Madrid, Spain in June 2017, the company presented data demonstrating responses of oral rigosertib with azacitidine in AML and MDS, as well as oral rigosertib as a single agent. Eight AML patients were evaluable for response, with an overall response rate (ORR) of 37.5%, and responses in both secondary and refractory AML. Two additional patients had stable disease (25%). Responses were durable, with the longest response in AML approaching one year. Among 33 evaluable MDS patients, ORR was 76%. Complete remission (CR) in eight (24%), concurrent marrow CR (mCR) and hematologic improvement (HI) in 10 (30%), mCR alone in six (18%), and HI alone in 1 (3%). ORR was 85% in hypomethylating agent (HMA) naïve patients and 62% in HMA resistant patients.

Patent Position

As of 2018, Onconova owns or exclusively licensed 85 issued patents and 12 pending patent applications covering composition-of-matter, process, formulation and various indications for method-of-use for rigosertib filed worldwide, including seven patents and two patent applications in the United States. The U.S. composition-of-matter patent for rigosertib, which the company in-licensed pursuant to the license agreement with Temple, currently expires in 2026. The U.S. method of treatment patent for rigosertib, which Onconova also in-licensed from Temple, expires in 2025. A patent covering the use of rigosertib in combination with anticancer agents including azacitidine is issued and will expire in 2028. Patent term extensions may be available, depending on various provisions in the law.

As of March 2018, Onconova owned or exclusively licensed 28 issued patents and one pending patent application covering composition-of-matter, process, formulation and various indications for method-of-use for briciclib filed worldwide, including one patent in the United States. The U.S. composition-ofmatter patent for briciclib expires in 2025.

As of March 2018, the company owned or exclusively licensed 62 issued patents and three pending patent applications covering composition of matter, formulation and various indications for method-of-use for recilisib filed worldwide, including six patents in the United States. The U.S. composition-ofmatter patent for recilisib expires in 2020 and the U.S. formulation patent expires in 2031. A new patent, under review, is expected to significantly expand and extend coverage of rigosertib worldwide.

In addition, Onconova has received orphan designation for rigosertib for the treatment of MDS in the US and Europe. Its partner SymBio has received similar designation in Japan.

Financials

In August Onconova published its 2018H1 figures which were in line with our expectations. Net loss came in at USD 9.4 million compared to USD 10.9 million in 2017H1. Expenses for R&D amounted to USD 8.6 million (2017H1: USD 9.5 million). By the end of 2018H1, cash and cash equivalents totaled USD 29.5 million. In May, the company successfully raised USD 28.8 million. Based on the Company's cash burn for 2017 and its current projections, Onconova expects that cash and cash equivalents will be sufficient to fund ongoing trials and operations into 2019Q4. Besides, we expect at least one lucrative partnership deal before the end of 2019 considering the fact that Onconova will have published its topline Phase III data for rigosertib around mid 2019.

Profit & Loss Statement

USD mln	2016A	2017A	2017H1A	2018H1A
Revenues	5.545	0.787	0.534	1.049
R&D Costs	20.071	19.119	9.500	8.647
SG&A	9.178	7.405	3.943	3.895
Operating Profit/(Loss)	(23.703)	(25.737)	(12.861)	(11.541)
Income Taxes	0	0	0	0
Net Profit/(Loss)	(19.667)	(24.092)	(10.925)	(9.411)

Consolidated statement of cash flows

USD mln	2016A	2017A	2017H1A	2018H1A
Cash flow from operational activities	(15.813)	(23.820)	(11.749)	(10.133)
Cash flow from investing activities	-	-	-	-
Cash flow from financing activities	17.423	6.360	5.317	35.657
Cash and cash equivalents at beginning period	19.849	21.450	21.400	4.024
Net change in cash and cash equivalents	1.601	(17.426)	(6.411)	25.516
Cash and cash equivalents at end of period	21.450	4.024	14.989	29.540

Valuation

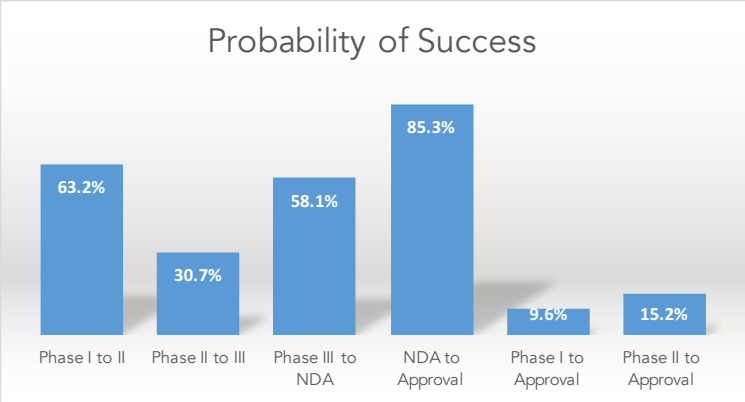
We have increased our valuation on Onconova to USD 355 million from USD 267 million due to the fact that we have increased the potential pricing for rigosertib. Recenlty, US biotech company Agios received approval of its AML drug Tibsovo which will be priced at USD 26,115 per month. The new leukemia drug Vyxeaos from Jazz Pharmaceuticals is priced annually at around USD 150,000. Therefore, we have increased the pricing for rigosertib to USD 100,000 from USD 80,000.

We have also increased the LOA for Onconova's lead product rigosertib. At this moment we do not address value to other programs in Onconova's pipeline. This is a potential upside for the company. The value per share before the reversed share split will be USD 4.15. After the split the value per share boils down to USD 62.50 per share.

Phase Success and Likelihood of Approval (LOA)

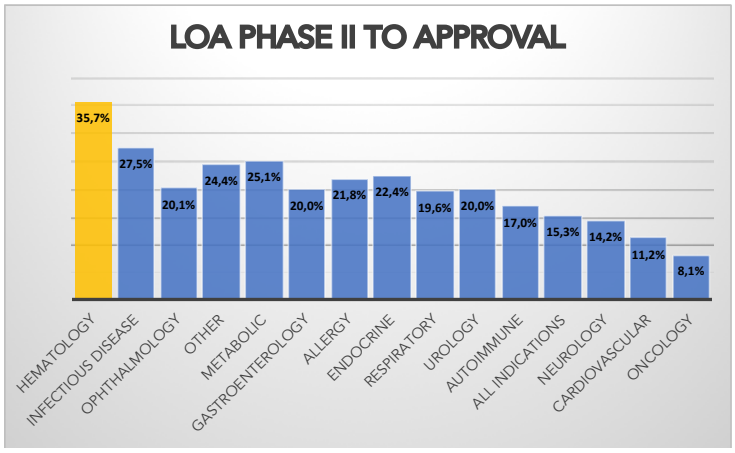
In estimating a value for the clinical programs with rigosertib, we made use of several studies that were done on the clinical development success rates for investigational drugs to measure success rates for investigational drugs. We analyzed individual drug program phase transitions from January 1, 2006 to December 31, 2015. For the ten years studied, 9,985 transitions in the Biomedtracker database were analyzed. A phase transition is the movement out of a clinical phase – for example, advancing from Phase I to Phase II development, or being suspended after completion of Phase I development. These transitions occurred in 7,455 clinical drug development programs, across 1,103 companies (both large and small), making this the largest study of its kind. With this broad set of data, we aimed to capture the diversity in drug development across levels of novelty, molecular modalities, and disease indications. Only company-sponsored, FDA registration-enabling development programs were considered; investigator-sponsored studies were excluded from this analysis.

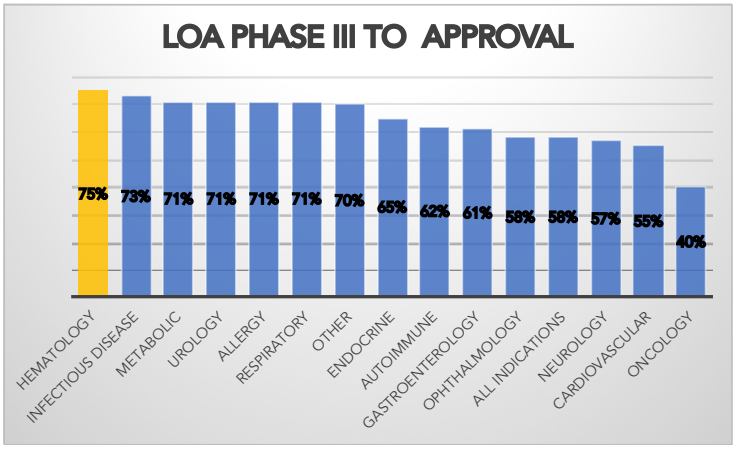
The Phase I transition success rate was 63.2% (n=3,582). As this Phase is typically conducted for safety testing and is not dependent on efficacy results for candidates to advance, it is common for this phase to have the highest success rate among the clinical phases across most categories analyzed in this report. Phase I success rates may also benefit from delayed reporting bias, as some larger companies may not deem failed Phase I programs as material and thereby not report them in the public domain. The Phase II transition success rate (30.7%, n=3,862) was substantially lower than Phase I, and the lowest of the four phases studied. As this is generally the first stage where proof-of-concept is deliberately tested in human subjects, Phase II consistently had the lowest success rate of all phases. This is also the point in development where industry must decide whether to pursue the large, expensive Phase III studies and may decide to terminate development for multiple reasons including commercial viability. The second-lowest phase transition success rate was found in Phase III (58.1%, n=1,491). This is significant as most company-sponsored Phase III trials are the longest and most expensive trials to conduct. The probability of FDA approval after submitting a New Drug Application (NDA) or Biologic License Application (BLA), taking into account re-submissions, was 85.3% (n=1,050). Multiplying these individual phase components to obtain the compound probability of progressing from Phase I to U.S. FDA approval (LOA) reveals that only 9.6% (n=9,985) of drug development programs successfully make it to market (see graph below)



Source: BIO Industry Analysis

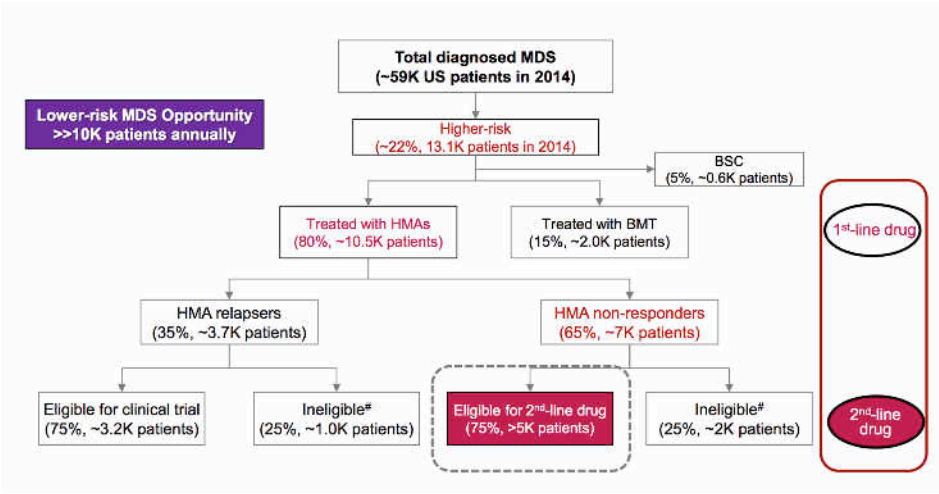
Major disease areas were segmented according to the convention used by Biomedtracker, and categorized 21 major diseases and 558 indications for the 2006-2015 timeframe. As can be seen in the graphs below, there is a wide range of Likelihood of Approval (LOA) from Phase I, II and III.





Valuation rigosertib in HR-MDS (IV) and LR-MDS (oral)

In estimating a value for rigosertib in MDS, we took into account potential markets in the US, Europe and Japan with a total number of patients of 60,000 in the US, 105,000 in Europe and 10,000 in Japan, with a market launch in the US in 2019, 2020 in Europe and 2021 in Japan. For the second line therapy (HR-MDS IV) we calculate the number of eligible patients to be 9%. (23% x 80% x 65% x 75%, see graph below), whereas for first line oral therapy in HR-MDS we calculate the number of eligible patients to be 18%. We calculate a Risk adjusted Discount Rate of 11%. Annual pricing per treatment is set at USD 100,000 which is rather conservative compared with pricing of the new AML drugs like Tibsovo from Agios. In Europe we calculate lower price of USD 60,000 due to lower reimbursement. For the first line oral therapy we have worked annual pricing of USD 60,000 and USD 42,000 as this is part of a combination therapy. Although we believe that Onconova will potentially partner its program in MDS with a large pharmaceutical, in our model we have calculated its value by marketing the drug independently. In Japan we go with a royalty of 20% based on its partnership with SymBio. We estimate that a peak market share of 15-20% is possible. In line with the report of BioMedTracker (see hematological disorders, we used a LOA of 40% and 75% for Phase II and Phase III respectively. **This leads to a total valuation of USD 355 million or USD 4.15 per share.**



Source: Onconova

Valuation rigosertib HR-MDS IV US Market

Year	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	
No of patients US (yoy growth 3.5% as of 2015)	72.520	75.058	77.685	80.404	83.218	86.131	89.145	92.266	95.495	98.837	
No of patients eligible (15%)	9.790	10.133	10.487	10.855	11.234	11.628	12.035	12.456	12.892	13.343	
Penetration	0.8%	1.5%	3.0%	4.5%	6.8%	9.0%	11.3%	12.8%	14.3%	15.0%	
Total Revenues (USD m)	7.6	16.0	33.4	52.4	82.1	114.5	149.6	177.2	207.0	227.8	
Margin 50%	3.8	8.0	16.7	26.2	41.1	57.2	74.8	88.6	103.5	113.9	
WACC 12%	0.70	0.62	0.55	0.49	0.44	0.39	0.35	0.31	0.27	0.24	
NPV (million)	2.7	5.0	9.3	12.9	18.0	22.3	25.9	27.3	28.3	27.7	
Total NPV (million)											**179.4**
LOA 75%											**125.6**

Valuation rigosertib HR-MDS IV EU Market

Year	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	
No of patients EU (yoy growth 3.5% as of 2015)	131.681	136.290	141.060	145.997	151.107	156.396	161.869	167.535	173.399	179.468	
No of patients eligible (9%)	17.777	18.399	19.043	19.710	20.399	21.113	21.852	22.617	23.409	24.228	
Penetration	0,8%	1,5%	3,0%	4,5%	6,8%	9,0%	11,3%	12,8%	14,3%	15,0%	
Total Revenues (USD m)	**8,4**	**17,6**	**36,8**	**57,6**	**90,4**	**125,9**	**164,6**	**195,0**	**227,8**	**250,6**	
Margin 50%	4,2	8,8	18,4	28,8	45,2	63,0	82,3	97,5	113,9	125,3	
WACC 12%	0,62	0,55	0,49	0,44	0,39	0,35	0,31	0,27	0,24	0,22	
NPV (million)	2,6	4,9	9,1	12,6	17,6	21,8	25,3	26,7	27,7	27,1	
Total NPV (million)											**175.5**
LOA 75%											**122.8**

Valuation rigosertib HR-MDS IV Japanese Market

Year	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	
No of patients Japan (yoy growth 3.5% as of 2015)	13,140	13,600	14,076	14,568	15,078	15,606	16,152	16,717	17,303	17,908	
No of patients eligible (9%)	1,064	1,102	1,140	1,180	1,221	1,264	1,308	1,354	1,402	1,451	
Penetration	1.8%	3.6%	5.4%	8.1%	10.8%	12.6%	14.4%	16.2%	17.1%	18.0%	
Total Revenues (USD m)	1.3	2.7	4.2	6.6	9.2	11.3	13.4	15.8	17.5	19.2	
Royalty Symbio 20%	0.0	0.3	0.9	1.3	1.8	2.2	2.7	3.2	3.5	3.8	
Milestone payment SymBio	8.0	5.0									
WACC 11%	0.57	0.51	0.45	0.40	0.36	0.32	0.29	0.26	0.23	0.20	
NPV (million)	5.3	3.1	0.3	0.4	0.6	0.7	0.8	0.9	0.9	0.9	
Total NPV (million)											**14.7**

Valuation rigosertib HR-MDS first line oral US Market

Year	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	
No of patients US (yoy growth 3.5% as of 2015)	13,140	13,600	14,076	14,568	15,078	15,606	16,152	16,717	17,303	17,908	
No of patients eligible (18%)	14,222	14,719	15,234	15,768	16,320	16,891	17,482	18,094	18,727	19,382	
Penetration	0,8%	1,5%	3,0%	4,5%	6,8%	9,0%	11,3%	12,8%	14,3%	15,0%	
Total Revenues (USD m)	6,7	14,0	29,2	45,8	71,8	100,1	130,7	154,9	181,0	199,1	
Margin 50%	3,3	7,0	14,6	22,9	35,9	50,0	65,4	77,4	90,5	99,6	
WACC 12%	0,55	0,49	0,44	0,39	0,35	0,31	0,27	0,24	0,22	0,19	
NPV (million)	1,9	3,4	6,4	8,9	12,4	15,4	17,9	18,8	19,6	19,1	
Total NPV (million)											**104.8**
LOA 40%											**41.9**

Valuation rigosertib HR-MDS first line oral EU Market

Year	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	
No of patients EU (yoy growth 3.5% as of 2015)	143,104	148,113	153,297	158,662	164,215	169,963	175,912	182,069	188,441	195,036	
No of patients eligible (18%)	25,759	26,660	27,593	28,559	29,559	30,593	31,664	32,772	33,919	35,107	
Penetration	0,8%	1,5%	3,0%	4,5%	6,8%	9,0%	11,3%	12,8%	14,3%	15,0%	
Total Revenues (USD m)	8,6	17,9	37,5	58,8	92,2	128,4	167,8	198,8	232,3	255,6	
Margin 50%	4,3	9,0	18,7	29,4	46,1	64,2	83,9	99,4	116,2	127,8	
WACC 12%	0,49	0,44	0,39	0,35	0,31	0,27	0,24	0,22	0,19	0,17	
NPV (million)	2,1	3,9	7,3	10,2	14,2	17,6	20,4	21,5	22,3	21,8	
Total NPV (million)											**119.6**
LOA 40%											**41.8**

Recent Achievements and Near Term Milestones

In the past 9 months, Onconova has already reached a number of important mile stones that brought the company back on track towards commercialization of its lead candidate:

- Feb 2018: Successful secondary raise with gross proceeds of USD 10 million
- May 2018: Successful secondary raise with gross proceeds of ~ USD 29 million
- Jan 2018: Positive interim analysis Phase III INSPIRE Trial
- Jan 2018: Launch of "RASopathies" rare-disease collaboration with the National Cancer Institute (NCI), academic investigators and patient advocacy groups
- March 2018: Partnership for Latin America
- August 2018: Extension pivotal Phase III trial in Latin America

In the coming 6-12 months we expect a number of important mile stones that can drive the stock price upwards. These are:

- Phase III protocol and Special Protocol Assessment for Rigosertib Combination trial
- Completion enrollment Phase III INSPIRE trial
- Presentation updated data Phase II oral rigosertib + azacitidine
- Initiation of Phase III oral rigosertib + azacitidine in first line HR-MDS
- Topline data INSPIRE trial rigosertib (2019H2)
- Partnerships in other geographical areas like Europe and Asia/Pacific

Analyst: Marcel Wijma MSc
Marcel Wijma, Chief Research Officer and managing partner, has a longstanding history in financial biotech research. After selling Van Leeuwenhoeck Research (VLR) to SNS Securities in 2006, he established an award winning analyst team in biotech/life sciences at SNS Securities. In 2009, Marcel was awarded by Financial Times/Starmine as being one of the Top-3 biotech analysts in Europe. Later that year, Marcel purchased VLR from SNS Securities after which the company was reconstituted. At VLR, he leads the professional VLR research organisation, which is augmented by selected external financial researchers with a specialisation in Life Sciences. Mr. Wijma has a Masters degree in Financial Economics from Erasmus University in Rotterdam.