

Onconova Therapeutics Inc

CORTELLIS COMPANY DETAILED PIPELINE REPORT

A comprehensive coverage of the the company's drug pipeline portfolio including detailed product records.

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ABOUT CORTELLIS COMPANY DETAILED PIPELINE REPORT

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GLOSSARY

Number of Drugs in Active Development

Number of drugs associated with the company or subsidiary that are currently in active development, i.e. the development status for the drug(s) is one of the following: Discovery, Clinical, Phase I, Phase II, Phase III, Pre-registration, Registered, Launched, or Suspended.

Number of Inactive Drugs

Number of drugs associated with the company or subsidiary that are currently classified as inactive, i.e. where the development status for the drug(s) is one of the following: No Development Reported, Discontinued, or Withdrawn.

Number of Patents as Owner

Number of patents associated with the company where the company is listed as owner; i.e. the relationship type (or way the patent refers to the company) is: Patent Assignee/Owner, Patent owner (not assignee), Licensee for development and marketing, Licensee – marketing only (Distributor), Patent assignee of family member, Inferred assignee.

Number of Patents as Third Party

Number of patents associated with the company where the company is listed as third party; i.e. the relationship type (or way the patent refers to the company) is: Patent assignee (not owner), Ex-Licensee for development and marketing, Ex-Licensee marketing only (Distributor), Customer of technology, Ex-Customer of technology, Patent opponent or infringer, Affiliate organization of inventor, Owner of underlying technology.

Patents summary table

This table represents a summary of the core patent coverage for this company covering Therapeutic EP, US and WO patents since 1990 only.

Number of Deals

A count of deals where the company or one of its subsidiaries is the primary company.

Key Indications

Displays top ten key indications for the company and its subsidiaries based on frequency (indications occurring with high and identical frequency are always included, and this may result in more than ten Key Indications being listed). Includes both indications associated with patents where the company is patent owner and indications associated with drugs in active development. A drug is classified as 'active' if it features on a row (or rows) in the current development status table where the status is one of the following: Discovery, Clinical, Phase I, Phase II, Phase III, Pre-registration, Registered, Launched, or Suspended.

Key Target-based Actions

Displays top ten key target-based actions for the company and its subsidiaries based on frequency (actions occurring with high and identical frequency are always included, and this may result in more than ten Key Target-based Actions being listed). Includes both target-based actions associated with patents where the company patent owner and target-based actions associated with drugs in active development. A drug is classified as 'active' if it features on a row (or rows) in the current development status table where the status is one of the following: Discovery, Clinical, Phase I, Phase II, Phase III, Pre-registration, Registered, Launched, or Suspended. A target-based action is one that is associated with a target.

Key Technologies

Displays top ten key technologies for the company and its subsidiaries based on frequency (technologies occurring with high and identical frequency are always included, and this may result in more than ten Key Technologies being listed). Includes both key technologies associated with patents where the company relationship is patent owner and key technologies associated with drugs in active development. A drug is classified as 'active' if it features on a row (or rows) in the current development status table where the status is one of the following: Discovery, Clinical, Phase I, Phase II, Phase III, Pre-registration, Registered, Launched, or Suspended.

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Onconova Therapeutics Inc

COMPANY OVERVIEW

Company Name	Onconova Therapeutics Inc
Parent Company Name	Onconova Therapeutics Inc
Website	http://www.onconova.com/
Country	US
Number of Drugs in Active Development	18
Number of Inactive Drugs	6
Number of Patents as Owner	14
Number of Patents as Third Party	1
Number of Deals	15
Key Indications	Cancer,Hematological neoplasm,Radiation sickness,Solid tumor,Acute myelogenous leukemia,Myelodysplastic syndrome,Acute lymphoblastic leukemia,Central nervous system disease,Chronic myelocytic leukemia,Inflammatory disease,Ovary tumor,Squamous cell carcinoma,Toxicity
Key Target-based Actions	Abl tyrosine kinase inhibitor,Cyclin-dependent kinase-1 inhibitor,Cyclin-dependent kinase inhibitor 1 inhibitor,p53 tumor suppressor protein inhibitor,Bax protein inhibitor,Cyclooxygenase 2 inhibitor,Tumor protein p73 inhibitor,AKT protein kinase inhibitor,BCL2L11 gene stimulator,Bcr protein inhibitor,Casein kinase II inhibitor,Cyclin D1 inhibitor,Jun N terminal kinase modulator,MAP kinase inhibitor,Phosphoinositide 3-kinase inhibitor,Polo-like kinase 1 inhibitor,Tubulin beta inhibitor
Key Technologies	Small molecule therapeutic,Oral formulation,Infusion,Intravenous formulation,Capsule formulation,Prodrug,Subcutaneous formulation,Analytical method,Drug screening,Formulation oral taste-masking,Formulation preservation,Formulation solid oral,Liquid formulation,Quick release

COMPANY PROFILE

SUMMARY

Onconova Therapeutics is a private development-stage biopharmaceutical company founded in 1998, by scientific founder Dr Premkumar Reddy, focused on the development of treatments for cancer and radiation injury.

COMPANY LOCATION

Onconova is located in Newtown, PA and Lawrenceville, NJ.

LICENSING AGREEMENTS

In May 2008, KINAXO Biotechnologies and Onconova Therapeutics agreed to collaborate on the development of novel small molecule therapeutics for cancer treatment and radiation protection.

EARLY R&D

By November 2008, Onconova was investigating a series of immunoconjugate compounds suitable for use with monoclonal antibodies. At that time, the company was seeking to outlicense the program to biopharmaceutical companies.

FINANCIAL

In June 2013, Onconova filed a form S-1 registration statement with the US SEC for the proposed IPO of its common stock. In July 2013, the company announced the pricing of the IPO of 5,166,667 shares of its common stock priced at \$15 each. The underwriters were granted a 30-day option to purchase an additional 7,75,000 shares of the common stock at the same price to cover overallocments. The shares were to begin trading on The NASDAQ Global Market on July 25, 2013 under the ticker symbol 'ONTX'. The offer was expected to close on July 30, 2013 . By September 2013,

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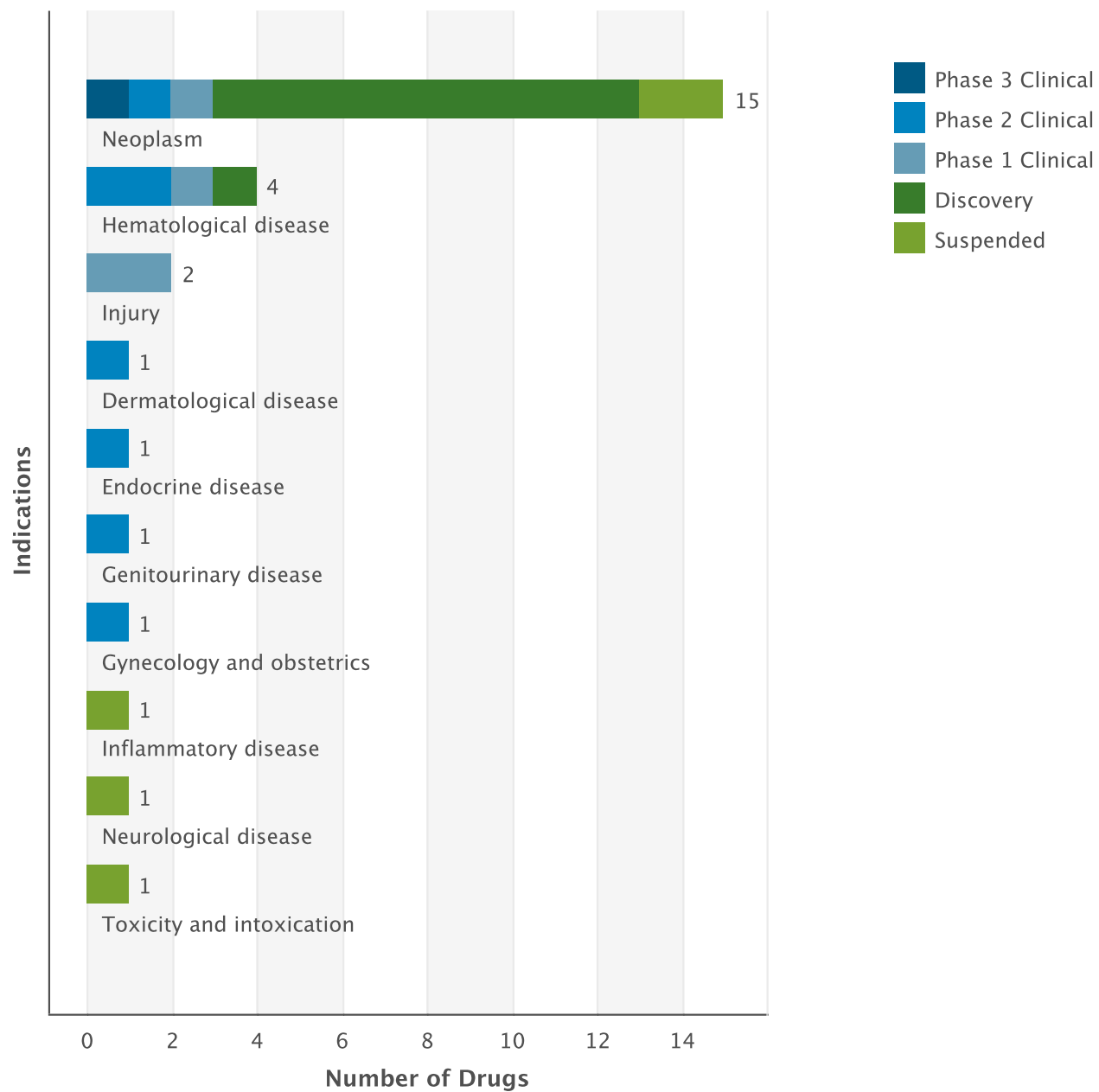
the offering had been closed and the company raised net proceeds of \$79.6 million. In December 2013, NASDAQ reported that, Onconova would be added to the NASDAQ Biotechnology Index under the ticker symbol 'ONTX', as a result of the annual re-ranking, which would become effective prior to market open on December 23, 2013.

PRODUCT PORTFOLIO SUMMARY

DRUGS

Drugs by Indication

Active Drugs by Indication Chart



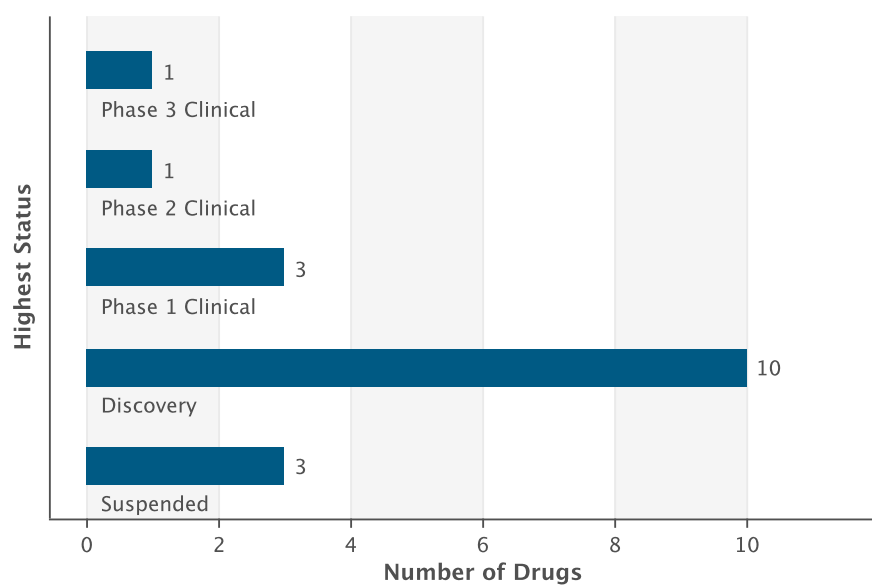
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Drugs by Indication Table

Indication	Active	Inactive	Total
Neoplasm	15	6	21
Hematological disease	4	0	4
Endocrine disease	1	1	2
Injury	2	0	2
Gynecology and obstetrics	1	1	2
Dermatological disease	1	0	1
Toxicity and intoxication	1	0	1
Neurological disease	1	0	1
Gastrointestinal disease	0	1	1
Inflammatory disease	1	0	1
Genitourinary disease	1	0	1

Drugs by Highest Status

Active Drugs by Highest Status Chart



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Drugs by Highest Status Table

Development Status	Number of Drugs
Phase 3 Clinical	1
Phase 2 Clinical	1
Phase 1 Clinical	3
Discovery	10
Suspended	3
No Development Reported	6

DEALS

Deal Type	Principal		Partner		Total
	Active	Inactive	Active	Inactive	
Drug - Discovery/Design	0	0	2	0	2
Drug - Funding	2	0	0	0	2
Drug - CRADA	2	0	0	0	2
Drug - Early Research/Development	1	0	5	0	6
Drug - Development/Commercialization License	1	0	0	0	1
Drug - Commercialization License	1	0	0	0	1
Drug - Development Services	0	0	1	0	1

CLINICAL TRIALS

Trials by Condition Studied

Condition Studied	Ongoing	All
Neoplasm	7	28
Hematological disease	2	5
Endocrine disease	0	3
Genitourinary disease	0	2
Dermatological disease	1	2
Gastrointestinal disease	0	2
Gynecology and obstetrics	0	2
Immune disorder	1	1

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Trials by Phase

Phase	Ongoing	All
Phase 3	2	3
Phase 2	3	7
Phase 1	3	20
Phase not specified	0	2

Phase Definitions

Phase 3 Clinical

Includes Phase 3, Phase 3b, Phase 3a, Phase 2/3 (where enrolment count is 300 or over)

Phase 2 Clinical

Includes Phase 2, Phase 2a, Phase 2b, Phase 1/2 (where enrolment count is 100 or over), Phase 2/3 (where enrolment count is under 300 or not specified)

Phase 1 Clinical

Includes Phase 1, Phase 1a, Phase 1, Phase 1/2 (where enrolment count is under 100 or not specified), Phase 0

PATENTS *

Indication	As Owner	As Third Party	Total
Cardiovascular disease	5	0	5
Endocrine disease	1	0	1
Gastrointestinal disease	3	0	3
Hematological disease	4	0	4
Degeneration	1	0	1
Immune disorder	6	0	6
Musculoskeletal disease	5	0	5
Neoplasm	11	0	11
Genetic disorder	1	0	1
Metabolic disorder	3	0	3
Neurological disease	5	1	6
Infectious disease	2	0	2
Injury	3	0	3
Toxicity and intoxication	1	0	1
Inflammatory disease	7	0	7

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Gynecology and obstetrics	1	0	1
Dermatological disease	1	0	1
Ulcer	1	0	1

* This table represents a summary of the core patent coverage for this company covering Therapeutic EP, US and WO patents since 1990 only.

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PRODUCT PORTFOLIO DRUG PIPELINE DETAIL

PLEASE NOTE: Highest status refers to highest development of that drug for one of the active companies

rigosertib sodium (iv, MDS/solid tumors), Onconova/SymBio

rigosertib sodium (iv, MDS/solid tumors), Onconova/SymBio SNAPSHOT

Drug Name	rigosertib sodium (iv, MDS/solid tumors), Onconova/SymBio
Key Synonyms	Novonex;Estybon;rigosertib;rigosertib sodium
Originator Company	Onconova Therapeutics Inc
Active Companies	Baxter International Inc;SymBio Pharmaceuticals Ltd;Onconova Therapeutics Inc
Inactive Companies	
Highest Status	Phase 3 Clinical
Active Indications	Myelodysplastic syndrome;Hematological neoplasm;Acute myelogenous leukemia;Solid tumor;Pancreas tumor;Acute lymphoblastic leukemia;Ovary tumor
Target-based Actions	BCL2L11 gene stimulator;Phosphoinositide 3-kinase inhibitor;Jun N terminal kinase modulator;MAP kinase inhibitor;Cyclin-dependent kinase-1 inhibitor;Polo-like kinase 1 inhibitor;AKT protein kinase inhibitor;Cyclin D1
Other Actions	Apoptosis stimulator;Cell cycle inhibitor;Anticancer protein kinase inhibitor
Technologies	Small molecule therapeutic;Intravenous formulation;Infusion
Last Change Date	13-Feb-2014

rigosertib sodium (iv, MDS/solid tumors), Onconova/SymBio DEVELOPMENT PROFILE

SUMMARY

Onconova Therapeutics and licensees Baxter International and SymBio are developing rigosertib sodium (ON-01910.Na; SyB-1101; Estybon; Novonex; ONO-106; SyB L-1101), a small-molecule, non-ATP-binding inhibitor of cyclin-dependent kinase (CDK)-1 and other kinases, including phosphoinositide 3-kinase, and polo-like kinase (Plk)-1, that inhibits the cell cycle at the G2-M interphase, for the potential treatment of myelodysplastic syndrome (MDS) and various types of cancers,.

In December 2010, enrollment began in a phase III trial in patients with MDS ,. In November 2013, the company expected to file an NDA in 2H14, and an MAA in the fourth quarter of 2014 or the 1Q15. In June 2012, a phase I study was initiated in Japan in relapsed/refractory MDS patients . In February 2014, SymBio was planning to file for approval of the drug in Korea.

Development in other indications is ongoing. In March 2009, a phase II trial began in patients with ovarian cancer ; in July 2011, the study was completed . In July 2010, a phase I/II trial began in patients with acute myeloid leukemia (AML) and acute lymphoblastic leukemia (ALL). In February 2008, a phase I trial in patients with solid tumors began in the US ; in June 2008, data from the trial were reported. By November 2008, three US and Indian phase I trials had started in solid tumors ; in April 2010, data were presented from an Indian trial and the two US trials.

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In May 2011, a phase II/III study for pancreatic cancer was initiated in the US. At that time, the primary completion date for the trial was expected to be July 2014. In December 2013, the ONTRAC trial was discontinued following an interim analysis by the Data Safety Monitoring Board (DSMB) reported that rigosertib plus gemcitabine was unlikely to significantly improve overall survival compared with gemcitabine alone in patients with metastatic pancreatic cancer. At that time, detailed analysis of the data was planned.

The company is also developing oral rigosertib sodium for the potential treatment of cancer and was investigating other styryl benzyl sulfones as apoptosis stimulators for the potential treatment of cancer.

rigosertib sodium (iv, MDS/solid tumors), Onconova/SymBio DEVELOPMENT STATUS

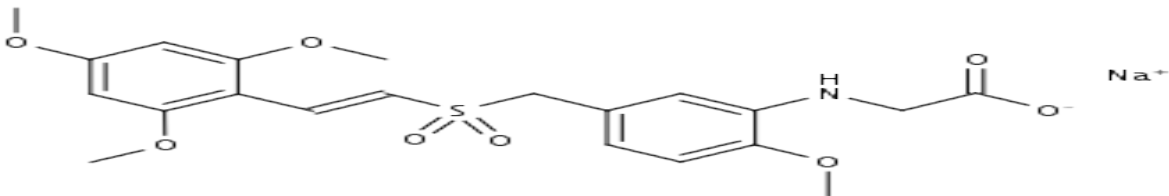
CURRENT DEVELOPMENT STATUS

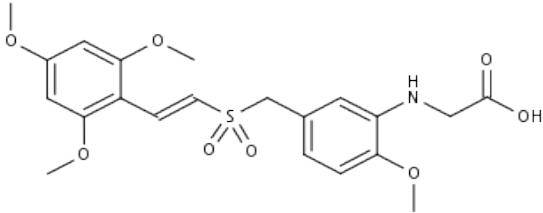
Company	Indication	Country	Development Status	Date
Onconova Therapeutics Inc	Myelodysplastic syndrome	Europe	Phase 3 Clinical	08-Jul-2011
Onconova Therapeutics Inc	Myelodysplastic syndrome	US	Phase 3 Clinical	06-Dec-2010
Onconova Therapeutics Inc	Acute lymphoblastic leukemia	US	Phase 2 Clinical	19-Jul-2010
Onconova Therapeutics Inc	Acute myelogenous leukemia	US	Phase 2 Clinical	19-Jul-2010
Onconova Therapeutics Inc	Ovary tumor	US	Phase 2 Clinical	04-Mar-2009
Onconova Therapeutics Inc	Solid tumor	India	Phase 1 Clinical	12-Nov-2008
Onconova Therapeutics Inc	Solid tumor	US	Phase 1 Clinical	29-Feb-2008
SymBio Pharmaceuticals Ltd	Myelodysplastic syndrome	Japan	Phase 1 Clinical	29-Jun-2012
Baxter International Inc	Myelodysplastic syndrome	Europe	Discovery	19-Sep-2012
Baxter International Inc	Pancreas tumor	Europe	Discovery	19-Sep-2012
Onconova Therapeutics Inc	Hematological neoplasm	US	Discovery	08-Dec-2012
SymBio Pharmaceuticals Ltd	Myelodysplastic syndrome	South Korea	Discovery	08-Jul-2011
Onconova Therapeutics Inc	Pancreas tumor	US	Discontinued	17-Dec-2013

rigosertib sodium (iv, MDS/solid tumors), Onconova/SymBio CHEMICAL STRUCTURES

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CAS Registry Number:	Confidence Level:
592542-60-4	1
	
Name	Type
rigosertib sodium	USAN
Novonex	Trade Name
Estybon	Trade Name
ON-1910 sodium	Research Code
ON-1910Na	Research Code
ON-01910Na	Research Code
ON-1910N	Research Code
ON-01910.Na	Research Code

CAS Registry Number:	Confidence Level:
592542-59-1	1
	
Name	Type
rigosertib	INN; USAN
ON-01910	Research Code

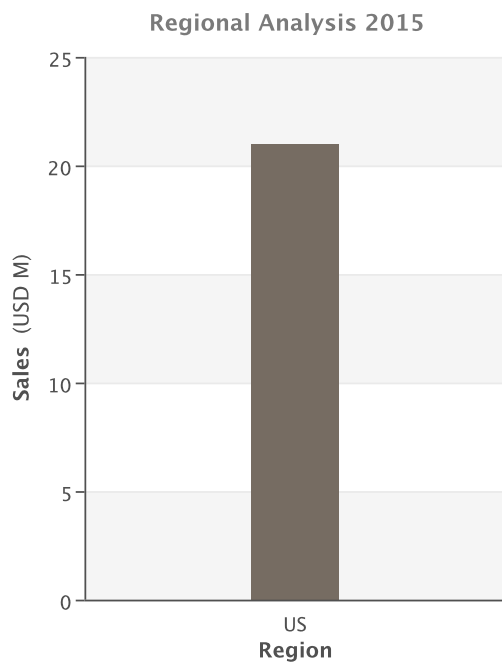
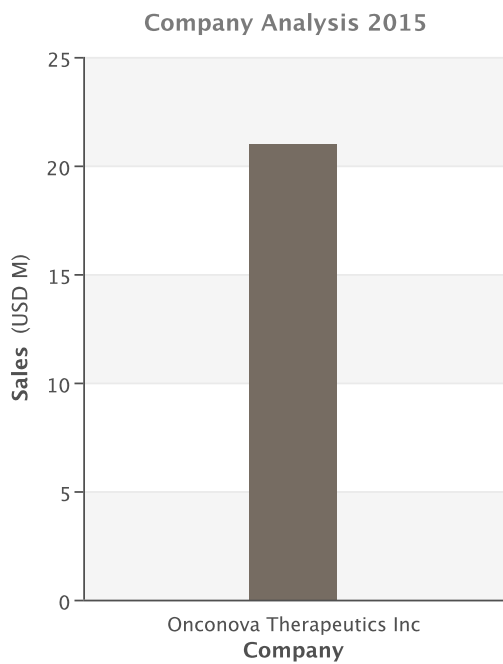
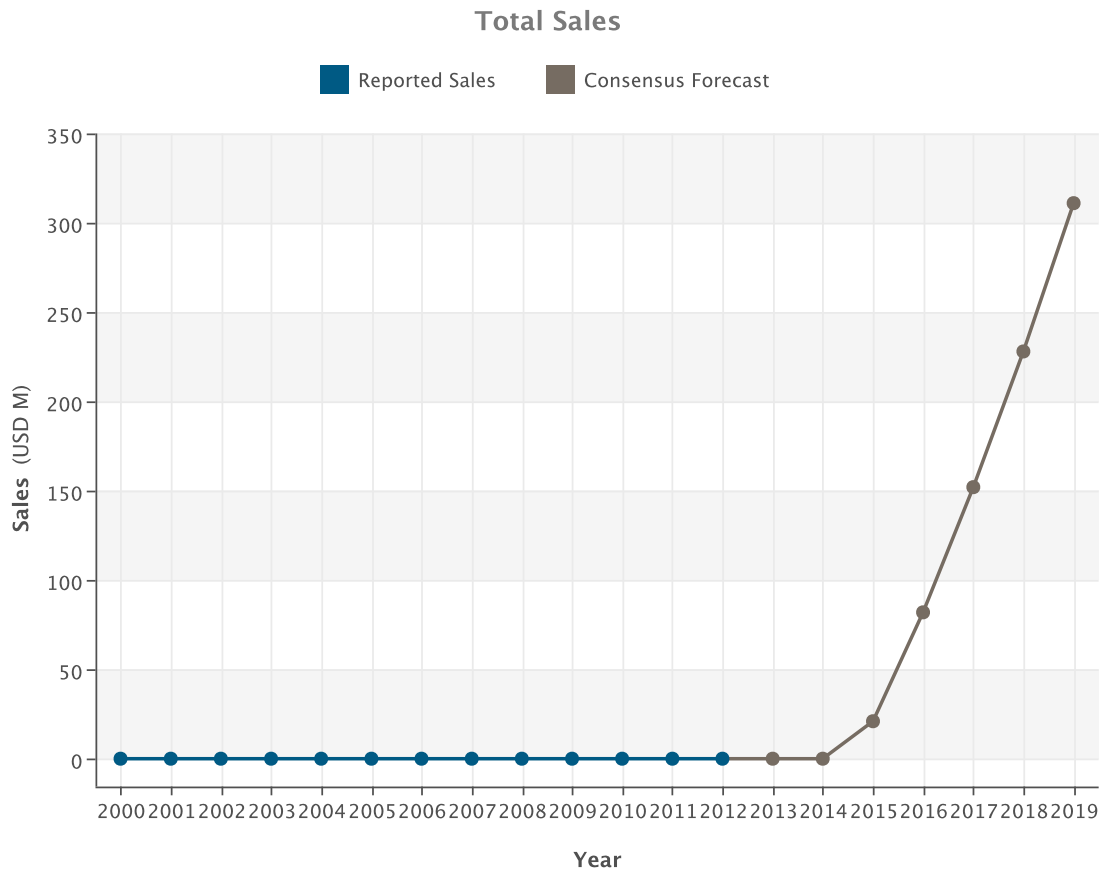
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rigosertib sodium (iv, MDS/solid tumors), Onconova/SymBio DRUG NAMES

Names	Type
rigosertib	INN, USAN
SyB-L-1101	Research Code
ON-01910.Na	Research Code
SyB-1101 (iv, MDS), SymBio	
Novonex	Trade Name
ON-1910N	Research Code
ON-1910 sodium	Research Code
ON-01910Na	Research Code
ON-1910Na	Research Code
ON-01910	Research Code
Estybon	Trade Name
ONO-106	Research Code
rigosertib sodium	USAN
rigosertib sodium (iv, MDS/solid tumors), Onconova/SymBio	
styryl benzyl sulfone (cell cycle inhibitor), Onconova	

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CHARTS



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COMMENTARY

CONSENSUS FORECAST INFORMATION

Consensus forecast data for Onconova Therapeutics are presented. It is assumed that Consensus forecast data also encompass sales for oral rigosertib sodium. No Consensus forecast data are currently available for SymBio Pharmaceuticals and Baxter International.

REGIONAL DEVELOPMENT AND MARKETING RIGHTS

In July 2011, Onconova and SymBio agreed to collaborate on the development and commercialization of rigosertib to treat MDS in Japan and Korea. Under the terms of the agreement, SymBio obtained an exclusive license for Japan and Korea and was to develop and commercialize rigosertib in these countries [1206349].

In September 2012, Baxter International entered into a licensing agreement with Onconova to market rigosertib for MDS and pancreatic cancer in the European Union and other countries in Europe [1324644].

rigosertib sodium (iv, MDS/solid tumors), Onconova/SymBio CLINICAL TRIALS

Trials by Phase and Condition Studied

Phase 4 Clinical		Phase 3 Clinical		Phase 2 Clinical		Phase 1 Clinical		Phase Unspecified		Total	
On-going	All	On-going	All	On-going	All	On-going	All	On-going	All	On-going	All
Myelodysplastic syndrome											
0	0	2	2	0	2	2	8	0	0	4	12
Solid tumor											
0	0	0	0	0	0	0	4	0	0	0	4
Acute myelogenous leukemia											
0	0	0	0	0	0	0	4	0	0	0	4
Ovary tumor											
0	0	0	0	0	2	0	0	0	0	0	2
Advanced solid tumor											
0	0	0	0	0	0	0	2	0	0	0	2
Acute lymphoblastic leukemia											
0	0	0	0	0	0	0	2	0	0	0	2
Chronic lymphocytic leukemia											
0	0	0	0	0	0	0	2	0	0	0	2
Hepatocellular carcinoma											
0	0	0	0	0	0	0	1	0	0	0	1

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Mantle cell lymphoma											
0	0	0	0	0	0	0	1	0	0	0	1
Macroglobulinemia											
0	0	0	0	0	0	0	1	0	0	0	1
Metastatic pancreas cancer											
0	0	0	1	0	0	0	0	0	0	0	1
Multiple myeloma											
0	0	0	0	0	0	0	1	0	0	0	1
Hairy cell leukemia											
0	0	0	0	0	0	0	1	0	0	0	1
Chronic myelocytic leukemia											
0	0	0	0	0	0	0	1	0	0	0	1
Metastasis											
0	0	0	0	0	0	0	1	0	0	0	1

Total Trials by Phase and Status

Phase 4 Clinical		Phase 3 Clinical		Phase 2 Clinical		Phase 1 Clinical		Phase Unspecified		Total	
On-going	All	On-going	All	On-going	All	On-going	All	On-going	All	On-going	All
Total by Phase and Status											
0	0	2	3	0	4	3	18	0	0	5	25

Phase Definitions

Phase 3 Clinical

Includes Phase 3, Phase 3b, Phase 3a, Phase 2/3 (where enrolment count is 300 or over)

Phase 2 Clinical

Includes Phase 2, Phase 2a, Phase 2b, Phase 1/2 (where enrolment count is 100 or over), Phase 2/3 (where enrolment count is under 300 or not specified)

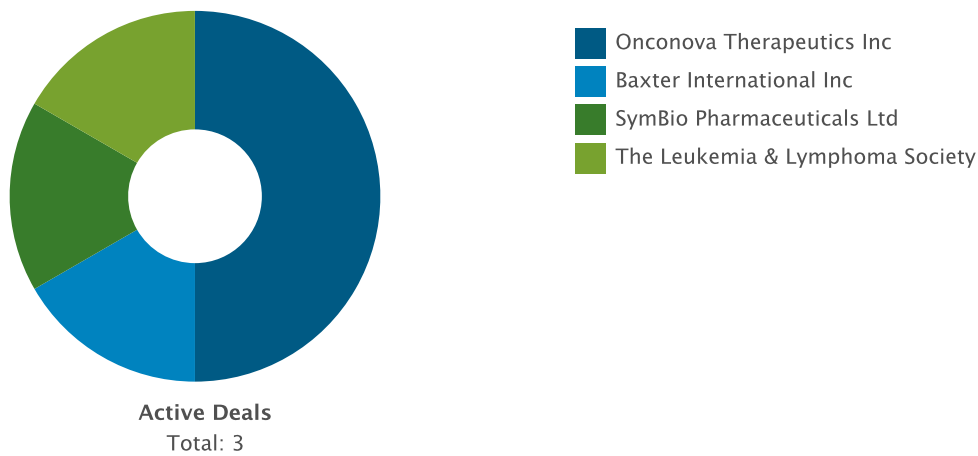
Phase 1 Clinical

Includes Phase 1, Phase 1a, Phase 1, Phase 1/2 (where enrolment count is under 100 or not specified), Phase 0

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DEALS

Deals by Parent Company Chart

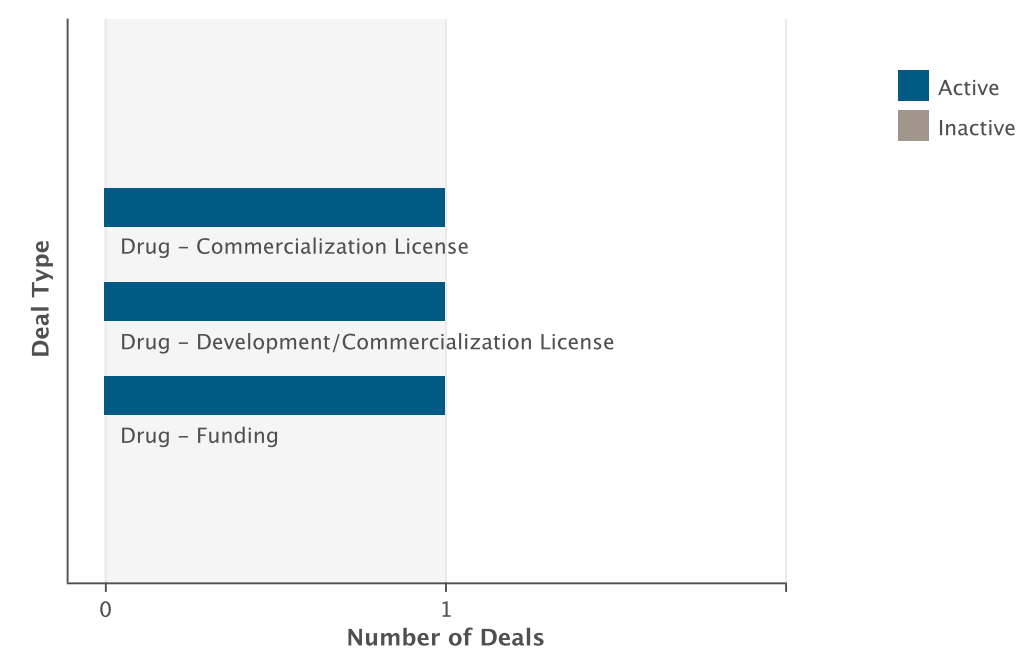


Deals by Parent Company Table

Company Name	Principal		Partner		Total
	Active	Inactive	Active	Inactive	
Onconova Therapeutics Inc	3	0	0	0	3
SymBio Pharmaceuticals Ltd	0	0	1	0	1
Baxter International Inc	0	0	1	0	1
The Leukemia & Lymphoma Society	0	0	1	0	1

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Deals by Type Chart



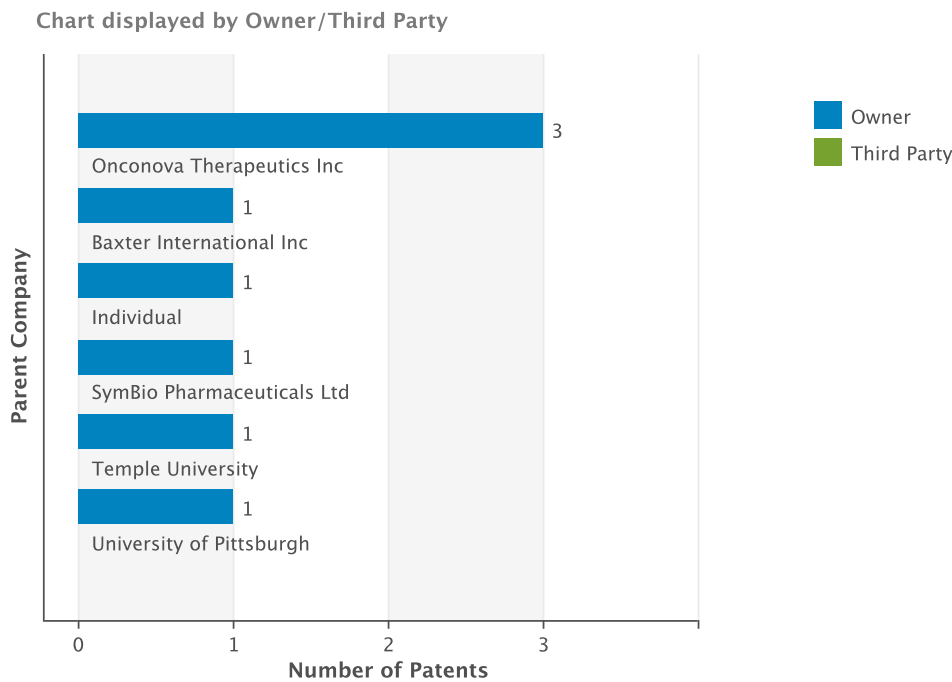
Deals by Type Table

Deal Type	Active	Inactive	Total
Drug - Commercialization License	1	0	1
Drug - Development/Commercialization License	1	0	1
Drug - Funding	1	0	1

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PATENTS

Patents by Parent Company Chart

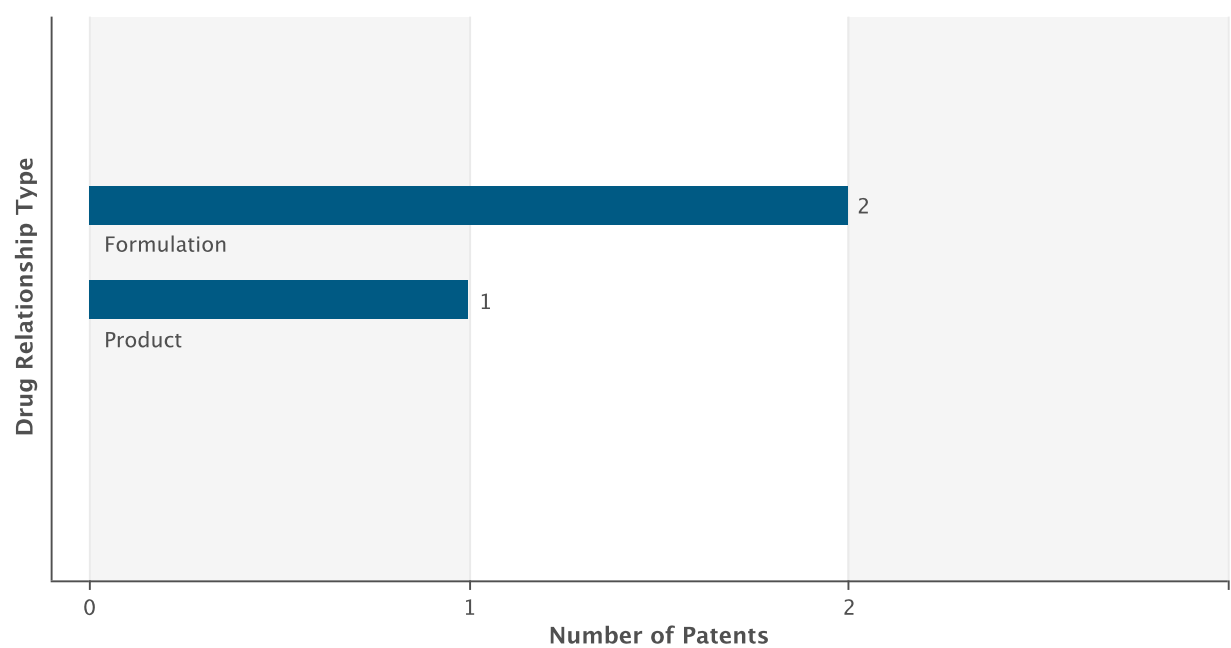


Patents by Parent Company Table

Company Name	As Owner	As Third Party	Total
Onconova Therapeutics Inc	3	0	3
Temple University	1	0	1
Individual	1	0	1
SymBio Pharmaceuticals Ltd	1	0	1
University of Pittsburgh	1	0	1
Baxter International Inc	1	0	1

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Patents by Drug Relationship Type Chart



Patents by Drug Relationship Type Table

Drug Relationship	Total
Formulation	2
Product	1

rigosertib sodium (oral capsule, MDS/squamous cell carcinoma/solid tumors), Onconova/SymBio

rigosertib sodium (oral capsule, MDS/squamous cell carcinoma/solid tumors), Onconova/SymBio
SNAPSHOT

Drug Name	rigosertib sodium (oral capsule, MDS/squamous cell carcinoma/solid tumors), Onconova/SymBio
Key Synonyms	rigosertib sodium;Estybon;rigosertib;Novonex
Originator Company	Onconova Therapeutics Inc
Active Companies	Onconova Therapeutics Inc;SymBio Pharmaceuticals Ltd
Inactive Companies	
Highest Status	Phase 2 Clinical
Active Indications	Myelodysplastic syndrome;Solid tumor;Squamous cell carcinoma;Acute myelogenous leukemia;Chronic myelocytic leukemia
Target-based Actions	Phosphoinositide 3-kinase inhibitor;BCL2L11 gene stimulator;Jun N terminal kinase modulator;Cyclin-dependent kinase-1 inhibitor;Polo-like kinase 1 inhibitor;AKT protein kinase inhibitor;MAP kinase inhibitor
Other Actions	Cell cycle inhibitor;Anticancer protein kinase inhibitor;Apoptosis stimulator;Synergist
Technologies	Oral formulation;Capsule formulation;Small molecule therapeutic
Last Change Date	13-Feb-2014

rigosertib sodium (oral capsule, MDS/squamous cell carcinoma/solid tumors), Onconova/SymBio DEVELOPMENT PROFILE

SUMMARY

Onconova is developing an oral capsule formulation of rigosertib sodium (ON-01910.Na, SyB-1101, SyB C-1101, Estybon, Novonex), which inhibits polo-like kinase 1, phosphoinositide 3-kinase, extracellular signal-regulated protein kinase and AKT pathways, for the potential treatment of myelodysplastic syndrome (MDS), chronic myelomonocytic leukemia (CMML), acute myeloid leukemia (AML), squamous cell carcinoma (SCC) and solid tumors,,,. Licensee SymBio is developing the agent in Japan and is investigating the agent in Korea, for the potential treatment of frontline MDS. By March 2012, it was reported that promising results had been shown in MDS phase II trials in the US ; in May 2012, another phase II trial for MDS was initiated. In March 2013, a phase II trial was initiated for SCC. In November 2013, a phase I/II trial of rigosertib plus azacitidine was initiated in patients with MDS, CMML and AML. In July 2010, a phase I trial was initiated in solid tumor patients in the US ; in June 2012, data were presented . In March 2013, SymBio initiated a phase I trial in frontline MDS in Japan. In February 2014, SymBio was planning to file for approval of the drug in Korea. In June 2012, the company was seeking to outlicense the drug in territories other than Japan/Korea.

The company is also developing an iv formulation of rigosertib sodium, for MDS and various types of cancers and was also investigating other styryl benzyl sulfones as apoptosis stimulators for the potential treatment of cancer.

rigosertib sodium (oral capsule, MDS/squamous cell carcinoma/solid tumors), Onconova/SymBio DEVELOPMENT STATUS

CURRENT DEVELOPMENT STATUS

Company	Indication	Country	Development Status	Date
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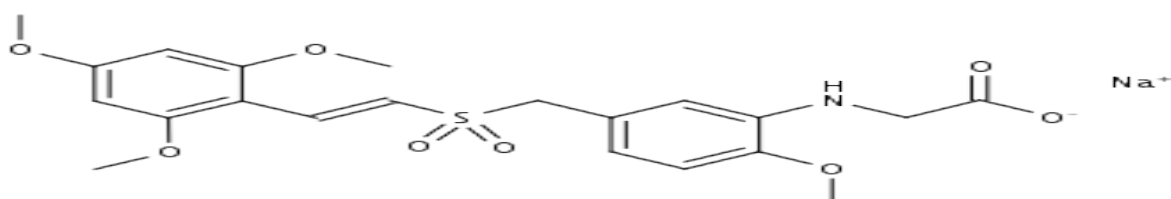
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Company	Indication	Country	Development Status	Date
Onconova Therapeutics Inc	Acute myelogenous leukemia	US	Phase 2 Clinical	12-Nov-2013
Onconova Therapeutics Inc	Chronic myelocytic leukemia	US	Phase 2 Clinical	12-Nov-2013
Onconova Therapeutics Inc	Myelodysplastic syndrome	US	Phase 2 Clinical	29-Mar-2012
Onconova Therapeutics Inc	Squamous cell carcinoma	US	Phase 2 Clinical	31-Mar-2013
Onconova Therapeutics Inc	Solid tumor	US	Phase 1 Clinical	21-Jul-2010
SymBio Pharmaceuticals Ltd	Myelodysplastic syndrome	Japan	Phase 1 Clinical	26-Mar-2013
SymBio Pharmaceuticals Ltd	Myelodysplastic syndrome	South Korea	Discovery	08-Jul-2011

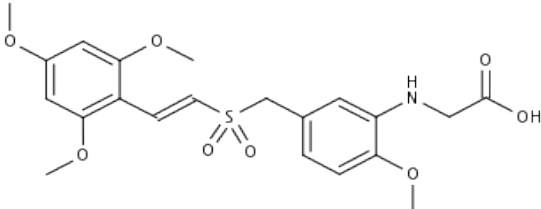
rigosertib sodium (oral capsule, MDS/squamous cell carcinoma/solid tumors), Onconova/SymBio
CHEMICAL STRUCTURES

CAS Registry Number:	Confidence Level:
592542-60-4	1



Name	Type
rigosertib sodium	USAN
Novonex	Trade Name
Estybon	Trade Name
ON-01910.Na	Research Code
ON-01910Na	Research Code
ON-1910 sodium	Research Code
ON-1910Na	Research Code
ON-1910N	Research Code

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CAS Registry Number:	Confidence Level:
592542-59-1	1
	
Name	Type
rigosertib	INN; USAN
ON-01910	Research Code

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rigosertib sodium (oral capsule, MDS/squamous cell carcinoma/solid tumors), Onconova/SymBio
DRUG NAMES

Names	Type
ON-01910.Na	Research Code
rigosertib sodium	USAN
rigosertib sodium (oral capsule, MDS/squamous cell carcinoma/solid tumors), Onconova/SymBio	
Estybon	Trade Name
Estybon (capsule, myelodysplastic syndrome/solid tumor), Onconova	
Novonex (capsule, myelodysplastic syndrome/solid tumor), Onconova	
ONO-106 (capsule, myelodysplastic syndrome/solid tumor), Onconova	
SyB C-1101	Research Code
ON-1910Na	Research Code
ON-1910 sodium	Research Code
SyB-1101 (oral, MDS), SymBio	
rigosertib	INN, USAN
ON-01910Na	Research Code
Novonex	Trade Name
ON-01910.Na (capsule, myelodysplastic syndrome/solid tumor), Onconova	
ON-01910 sodium (capsule, myelodysplastic syndrome/solid tumor), Onconova	

rigosertib sodium (oral capsule, MDS/squamous cell carcinoma/solid tumors), Onconova/SymBio
CLINICAL TRIALS

Trials by Phase and Condition Studied

Phase 4 Clinical		Phase 3 Clinical		Phase 2 Clinical		Phase 1 Clinical		Phase Unspecified		Total	
On-going	All	On-going	All	On-going	All	On-going	All	On-going	All	On-going	All
Myelodysplastic syndrome											
0	0	0	0	1	1	3	3	0	0	4	4
Advanced solid tumor											
0	0	0	0	0	0	0	2	0	0	0	2

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Chronic myelocytic leukemia											
0	0	0	0	0	0	1	1	0	0	1	1
Acute myelogenous leukemia											
0	0	0	0	0	0	1	1	0	0	1	1
Squamous cell carcinoma											
0	0	0	0	0	1	0	0	0	0	0	1

Total Trials by Phase and Status

Phase 4 Clinical		Phase 3 Clinical		Phase 2 Clinical		Phase 1 Clinical		Phase Unspecified		Total	
On-going	All	On-going	All	On-going	All	On-going	All	On-going	All	On-going	All
Total by Phase and Status											
0	0	0	0	1	2	3	5	0	0	4	7

Phase Definitions

Phase 3 Clinical

Includes Phase 3, Phase 3b, Phase 3a, Phase 2/3 (where enrolment count is 300 or over)

Phase 2 Clinical

Includes Phase 2, Phase 2a, Phase 2b, Phase 1/2 (where enrolment count is 100 or over), Phase 2/3 (where enrolment count is under 300 or not specified)

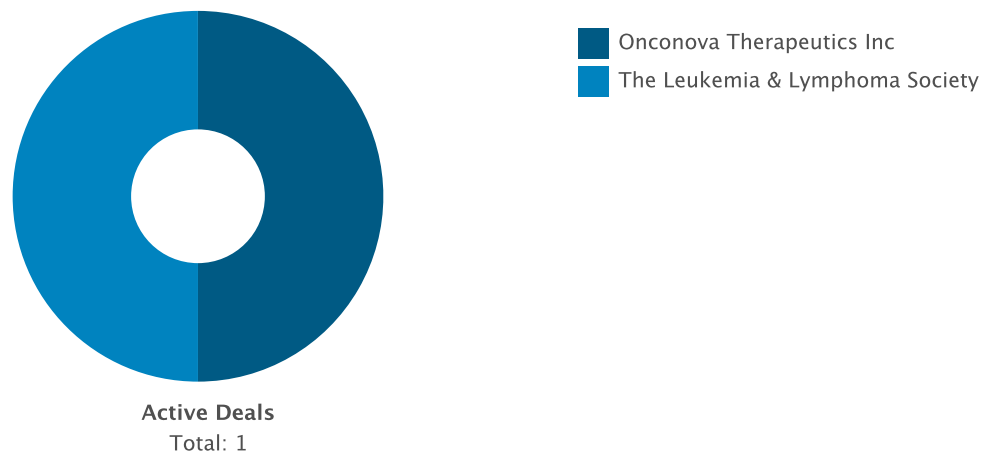
Phase 1 Clinical

Includes Phase 1, Phase 1a, Phase 1, Phase 1/2 (where enrolment count is under 100 or not specified), Phase 0

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DEALS

Deals by Parent Company Chart

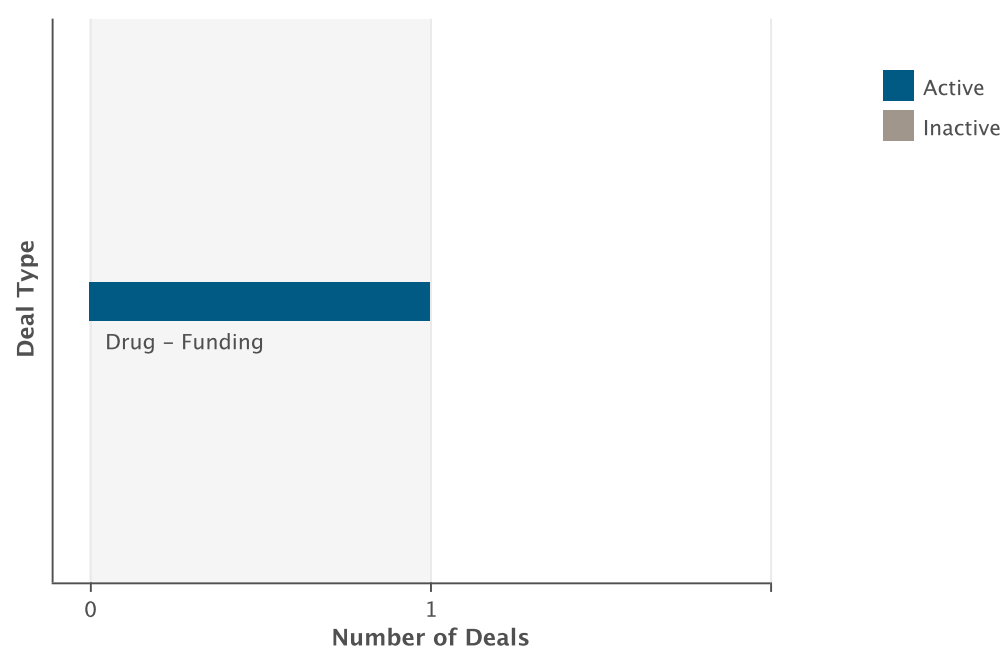


Deals by Parent Company Table

Company Name	Principal		Partner		Total
	Active	Inactive	Active	Inactive	
Onconova Therapeutics Inc	1	0	0	0	1
The Leukemia & Lymphoma Society	0	0	1	0	1

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Deals by Type Chart



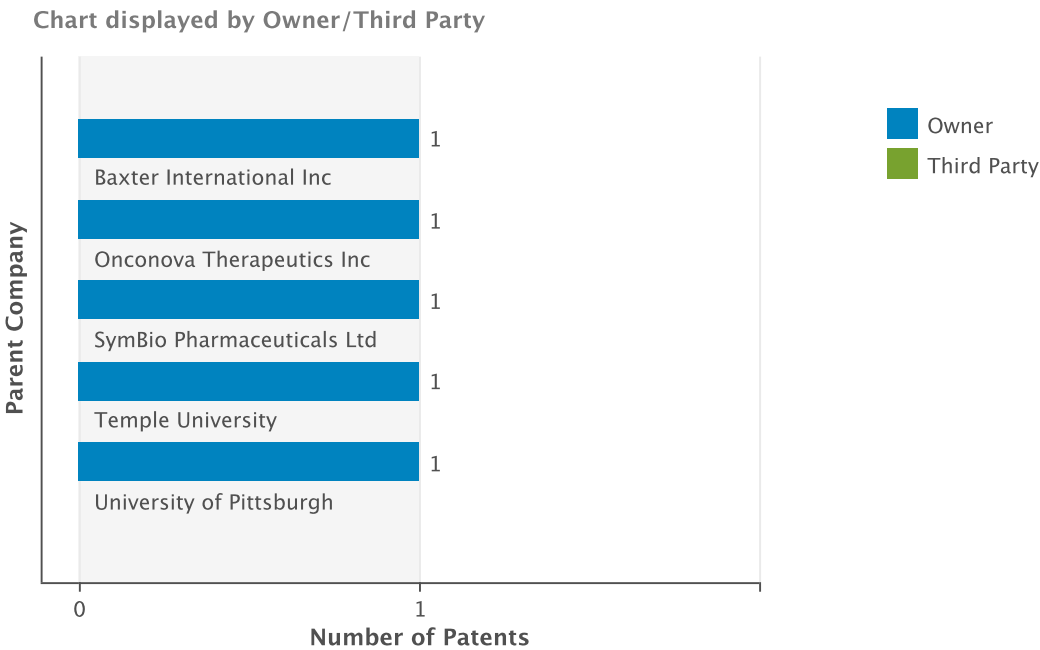
Deals by Type Table

Deal Type	Active	Inactive	Total
Drug - Funding	1	0	1

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PATENTS

Patents by Parent Company Chart

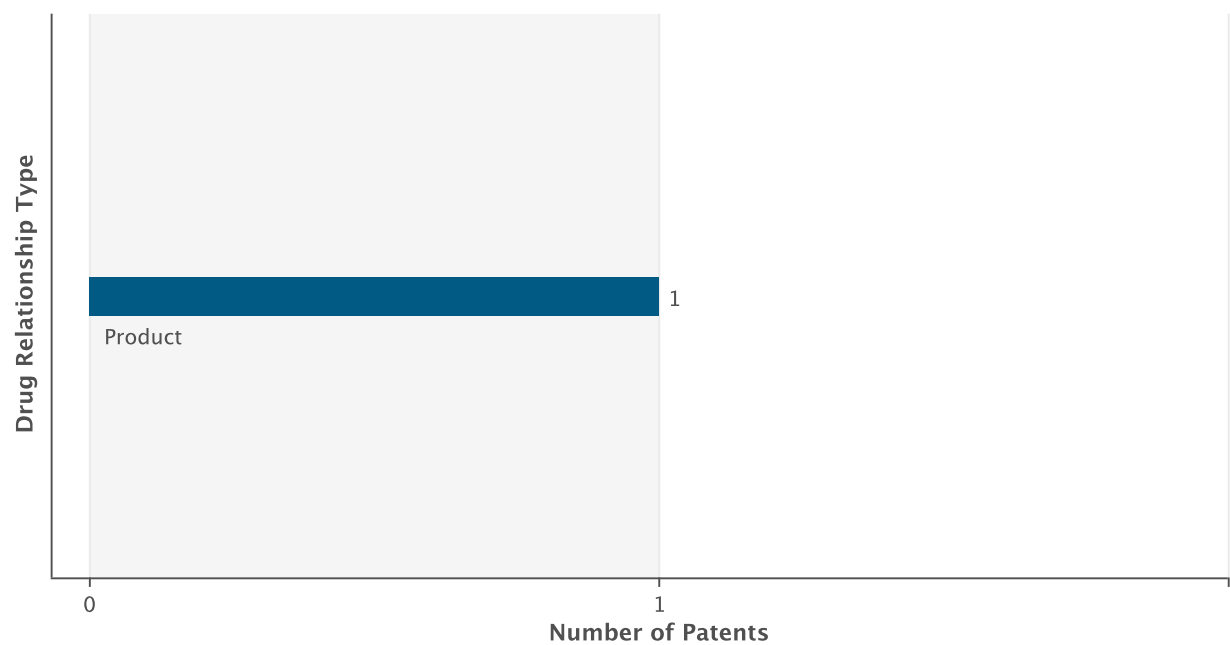


Patents by Parent Company Table

Company Name	As Owner	As Third Party	Total
Baxter International Inc	1	0	1
SymBio Pharmaceuticals Ltd	1	0	1
Temple University	1	0	1
Onconova Therapeutics Inc	1	0	1
University of Pittsburgh	1	0	1

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Patents by Drug Relationship Type Chart



Patents by Drug Relationship Type Table

Drug Relationship	Total
Product	1

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briciclib sodium

briciclib sodium SNAPSHOT

Drug Name	briciclib sodium
Key Synonyms	briciclib;briciclib sodium
Originator Company	Onconova Therapeutics Inc
Active Companies	Onconova Therapeutics Inc;Pullan Consulting
Inactive Companies	
Highest Status	Phase 1 Clinical
Active Indications	Hematological neoplasm
Target-based Actions	Cyclin D1 inhibitor
Other Actions	Cell cycle inhibitor;Apoptosis stimulator
Technologies	Prodrug;Intravenous formulation;Infusion;Small molecule therapeutic
Last Change Date	12-Feb-2014

briciclib sodium DEVELOPMENT PROFILE

SUMMARY

Onconova Therapeutics is developing briciclib sodium (ON-013105; structure shown), a styryl sulfone and a disodium phosphate ester prodrug of ON-013100 and cyclin D1 inhibitor, for the potential iv infusion treatment of hematological malignancies, including mantle cell lymphoma (MCL), non-Hodgkin B-cell lymphomas, acute lymphocytic leukemia (ALL) and chronic lymphocytic leukemia (CLL),,. In November 2009, a phase I trial in ALL and lymphoma began ; in September 2011, the trial was ongoing. In November 2013, the drug was still listed as being in phase I development and at that time, the company was seeking to outlicense the drug through Pullan Consulting.

briciclib sodium DEVELOPMENT STATUS

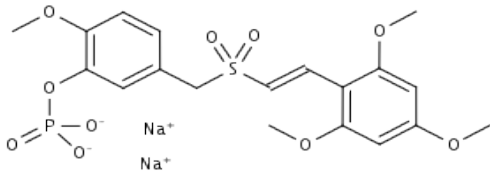
CURRENT DEVELOPMENT STATUS

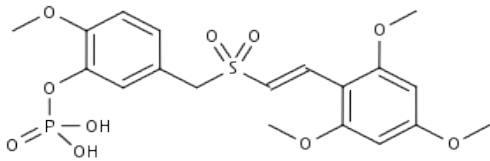
Company	Indication	Country	Development Status	Date
Onconova Therapeutics Inc	Hematological neoplasm	US	Phase 1 Clinical	30-Nov-2009
Pullan Consulting	Hematological neoplasm	US	Discovery	06-Nov-2013

briciclib sodium CHEMICAL STRUCTURES

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CAS Registry Number:	Confidence Level:
865784-01-6	4
	
Name	Type
briciclib sodium	USAN
ON-013105	Research Code

CAS Registry Number:	Confidence Level:
865783-99-9	2
	
Name	Type
briciclib	USAN
ON 014185	Research Code

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briciclib sodium DRUG NAMES

Names	Type
cyclin D1 inhibitor (iv prodrug, hematological malignancies), Onconova	
ON-013105.Na	Research Code
briciclib	USAN
ON-013105	Research Code
ON 014185	Research Code
styryl sulfone (iv prodrug, hematological malignancies), Onconova	
briciclib sodium	USAN

briciclib sodium CLINICAL TRIALS

Trials by Phase and Condition Studied

Phase 4 Clinical		Phase 3 Clinical		Phase 2 Clinical		Phase 1 Clinical		Phase Unspecified		Total	
On-going	All	On-going	All	On-going	All	On-going	All	On-going	All	On-going	All
Acute lymphoblastic leukemia											
0	0	0	0	0	0	1	1	0	0	1	1
Lymphoma											
0	0	0	0	0	0	1	1	0	0	1	1

Total Trials by Phase and Status

Phase 4 Clinical		Phase 3 Clinical		Phase 2 Clinical		Phase 1 Clinical		Phase Unspecified		Total	
On-going	All	On-going	All	On-going	All	On-going	All	On-going	All	On-going	All
Total by Phase and Status											
0	0	0	0	0	0	1	1	0	0	1	1

Phase Definitions

Phase 3 Clinical

Includes Phase 3, Phase 3b, Phase 3a, Phase 2/3 (where enrolment count is 300 or over)

Phase 2 Clinical

Includes Phase 2, Phase 2a, Phase 2b, Phase 1/2 (where enrolment count is 100 or over), Phase 2/3 (where enrolment count is under 300 or not specified)

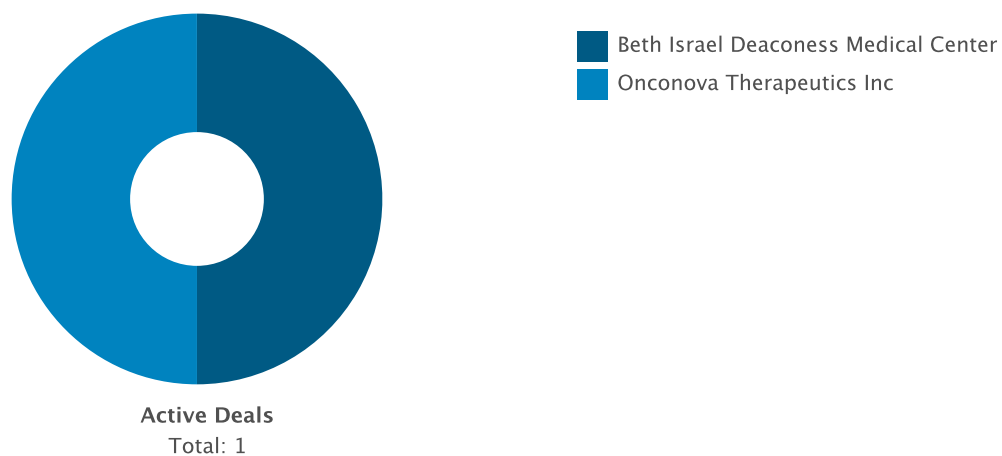
Phase 1 Clinical

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briciclib sodium DEALS AND PATENTS

DEALS

Deals by Parent Company Chart

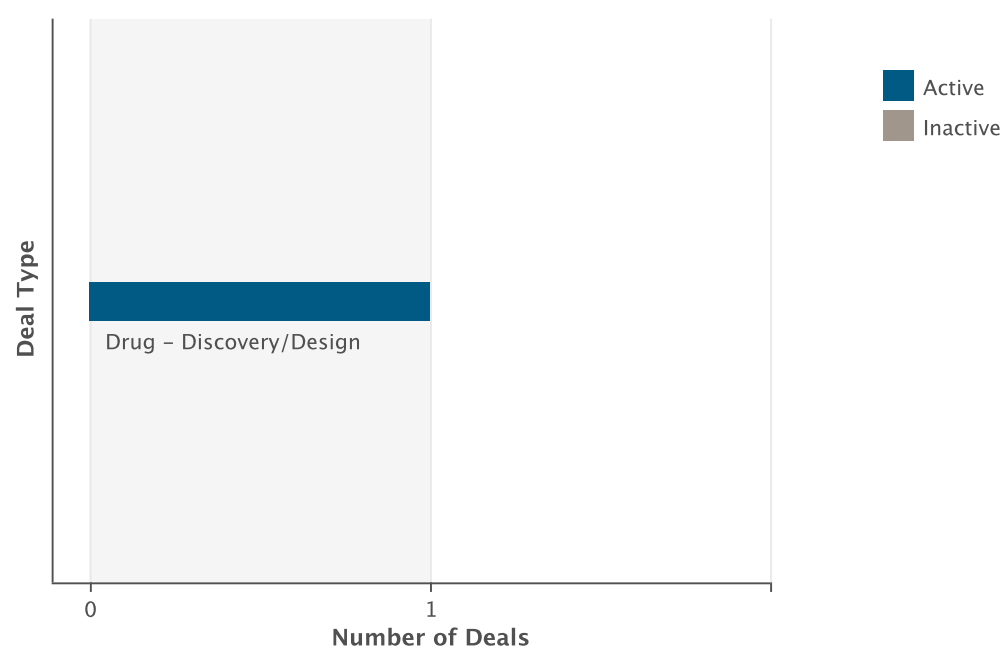


Deals by Parent Company Table

Company Name	Principal		Partner		Total
	Active	Inactive	Active	Inactive	
Onconova Therapeutics Inc	0	0	1	0	1
Beth Israel Deaconess Medical Center	1	0	0	0	1

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Deals by Type Chart



Deals by Type Table

Deal Type	Active	Inactive	Total
Drug - Discovery/Design	1	0	1

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recilisib sodium (oral, radiation sickness), Onconova

recilisib sodium (oral, radiation sickness), Onconova SNAPSHOT

Drug Name	recilisib sodium (oral, radiation sickness), Onconova
Key Synonyms	recilisib;recilisib sodium;Ex-RAD
Originator Company	Onconova Therapeutics Inc
Active Companies	Onconova Therapeutics Inc;Pullan Consulting
Inactive Companies	
Highest Status	Phase 1 Clinical
Active Indications	Radiation sickness
Target-based Actions	Tumor protein p73 inhibitor;Abl tyrosine kinase inhibitor;p53 tumor suppressor protein inhibitor;Cyclin-dependent kinase inhibitor 1 inhibitor;Bax protein inhibitor
Other Actions	Apoptosis inhibitor;Radioprotectant;Anticancer protein kinase inhibitor
Technologies	Oral formulation;Small molecule therapeutic
Last Change Date	04-Dec-2013

recilisib sodium (oral, radiation sickness), Onconova DEVELOPMENT PROFILE

SUMMARY

Onconova is developing recilisib sodium (ON-01210.Na, Ex-RAD), the lead from a series of oral tyrosine kinase inhibitors, as a preventative and therapeutic radioprotectant for potential use in cancer radiotherapy and in providing protection against occupational or accidental exposure to radiation,. By June 2012, the company had completed a phase I trial . In November 2013, the drug was still listed as being in phase I development and at that time, the company was seeking to outlicense the drug through Pullan Consulting.

The company is also developing an injectable, sc formulation of recilisib sodium for potential use in cancer radiotherapy and in providing protection against occupational or accidental exposure to radiation.

recilisib sodium (oral, radiation sickness), Onconova DEVELOPMENT STATUS

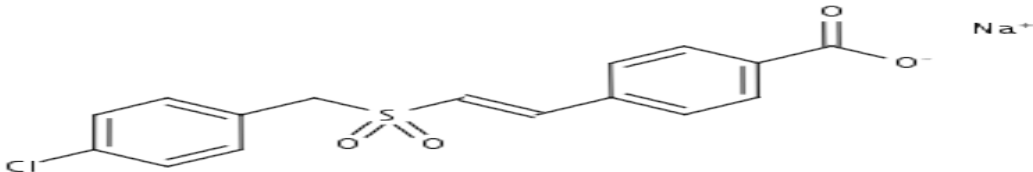
CURRENT DEVELOPMENT STATUS

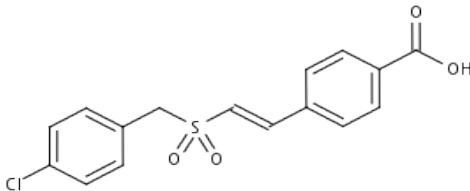
Company	Indication	Country	Development Status	Date
Onconova Therapeutics Inc	Radiation sickness	US	Phase 1 Clinical	08-Jun-2012
Pullan Consulting	Radiation sickness	US	Discovery	06-Nov-2013

recilisib sodium (oral, radiation sickness), Onconova CHEMICAL STRUCTURES

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CAS Registry Number:	Confidence Level:
922139-31-9	2
	
Name	Type
recilisib sodium	USAN
Ex-RAD	Trade Name
ON-01210.Na	Research Code

CAS Registry Number:	Confidence Level:
334969-03-8	2
	
Name	Type
recilisib	INN; USAN
ON-01210	Research Code

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recilisib sodium (oral, radiation sickness), Onconova DRUG NAMES

Names	Type
recilisib sodium (oral, radiation sickness), Onconova	
recilisib	INN, USAN
ON-01210	Research Code
ON-01210.Na (oral, radiation sickness), Onconova	
recilisib sodium	USAN
Ex-RAD	Trade Name
ON-01210.Na	Research Code

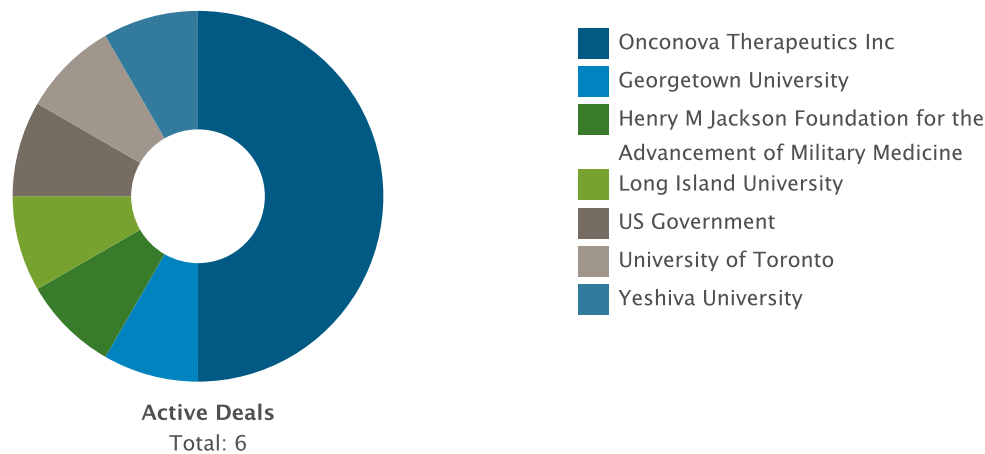
recilisib sodium (oral, radiation sickness), Onconova CLINICAL TRIALS

Total Trials by Phase and Status

Phase 4 Clinical		Phase 3 Clinical		Phase 2 Clinical		Phase 1 Clinical		Phase Unspecified		Total	
On-going	All	On-going	All	On-going	All	On-going	All	On-going	All	On-going	All
Total by Phase and Status											
0	0	0	0	0	0	0	1	0	0	0	1

DEALS

Deals by Parent Company Chart

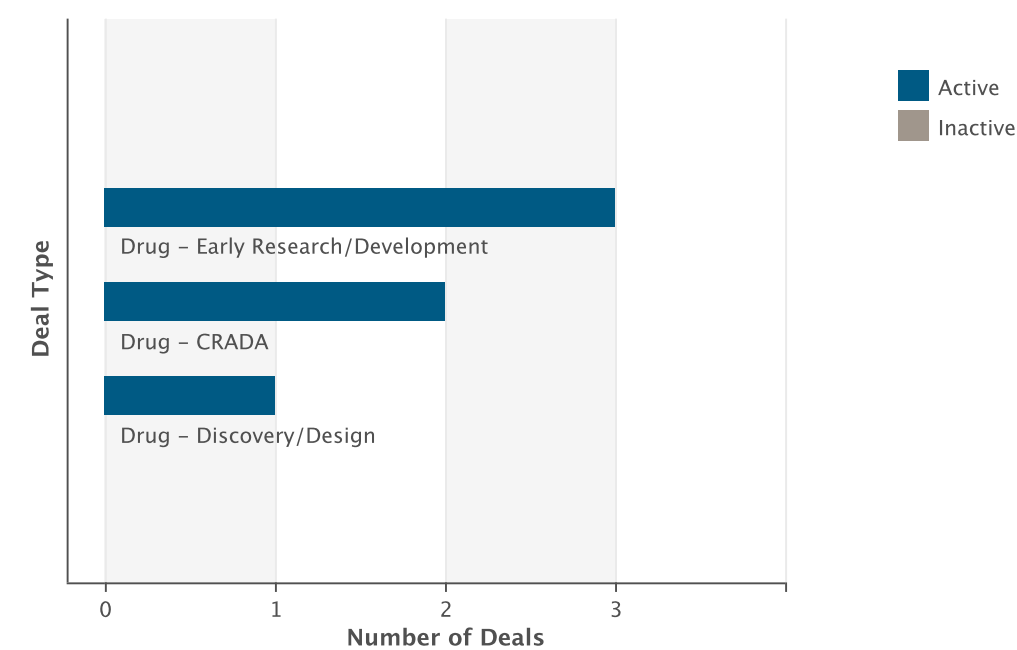


Deals by Parent Company Table

Company Name	Principal		Partner		Total
	Active	Inactive	Active	Inactive	
Onconova Therapeutics Inc	2	0	4	0	6
Long Island University	1	0	0	0	1
US Government	0	0	1	0	1
Henry M Jackson Foundation for the Advancement of Military Medicine	0	0	1	0	1
University of Toronto	1	0	0	0	1
Georgetown University	1	0	0	0	1
Yeshiva University	1	0	0	0	1

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Deals by Type Chart



Deals by Type Table

Deal Type	Active	Inactive	Total
Drug - Early Research/Development	3	0	3
Drug - CRADA	2	0	2
Drug - Discovery/Design	1	0	1

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recilisib sodium (sc, radiation sickness), Onconova

recilisib sodium (sc, radiation sickness), Onconova SNAPSHOT

Drug Name	recilisib sodium (sc, radiation sickness), Onconova
Key Synonyms	Ex-RAD;recilisib;recilisib sodium
Originator Company	Onconova Therapeutics Inc
Active Companies	Pullan Consulting;Onconova Therapeutics Inc
Inactive Companies	
Highest Status	Phase 1 Clinical
Active Indications	Radiation sickness
Target-based Actions	Cyclin-dependent kinase inhibitor 1 inhibitor;Tumor protein p73 inhibitor;Abl tyrosine kinase inhibitor;p53 tumor suppressor protein inhibitor;Bax protein inhibitor
Other Actions	Anticancer protein kinase inhibitor;Apoptosis inhibitor;Radioprotectant
Technologies	Subcutaneous formulation;Small molecule therapeutic
Last Change Date	24-Jan-2014

recilisib sodium (sc, radiation sickness), Onconova DEVELOPMENT PROFILE

SUMMARY

Onconova is developing recilisib sodium (ON-01210.Na, Ex-RAD), the lead from a series of injectable tyrosine kinase inhibitors, as a preventative and therapeutic radioprotectant for potential sc use in cancer radiotherapy and in providing protection against occupational or accidental exposure to radiation,. In January 2009, a phase I trial began. By May 2011, two phase I trials had been completed ; in October 2012, data were presented from the two trials. By June 2012, three phase I studies had been completed. In November 2013, the drug was still listed as being in phase I development and at that time, the company was seeking to outlicense recilisib sodium through Pullan Consulting.

The company is also developing an oral formulation of recilisib sodium for potential use in cancer radiotherapy and in providing protection against occupational or accidental exposure to radiation.

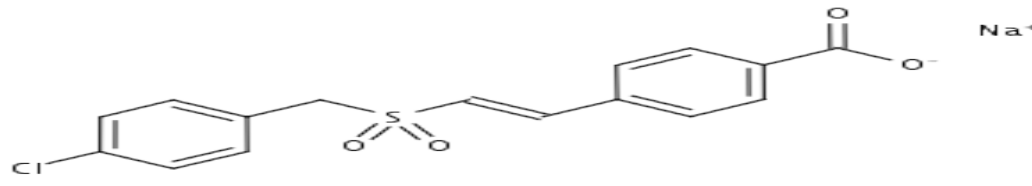
recilisib sodium (sc, radiation sickness), Onconova DEVELOPMENT STATUS

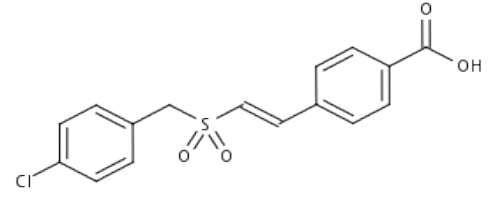
CURRENT DEVELOPMENT STATUS

Company	Indication	Country	Development Status	Date
Onconova Therapeutics Inc	Radiation sickness	US	Phase 1 Clinical	23-Jan-2009
Pullan Consulting	Radiation sickness	US	Discovery	06-Nov-2013

recilisib sodium (sc, radiation sickness), Onconova CHEMICAL STRUCTURES

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CAS Registry Number:	Confidence Level:
922139-31-9	2
	
Name	Type
recilisib sodium	USAN
Ex-RAD	Trade Name
ON-01210.Na	Research Code

CAS Registry Number:	Confidence Level:
334969-03-8	2
	
Name	Type
recilisib	INN; USAN
ON-01210	Research Code

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recilisib sodium (sc, radiation sickness), Onconova DRUG NAMES

Names	Type
tyrosine kinase inhibitor (radiation protection), Onconova	
ON-01210.Na	Research Code
Ex-RAD	Trade Name
ON-01210.Na (sc, radiation sickness), Onconova	
recilisib sodium (sc, radiation sickness), Onconova	
recilisib	INN, USAN
ON-01210	Research Code
recilisib sodium	USAN

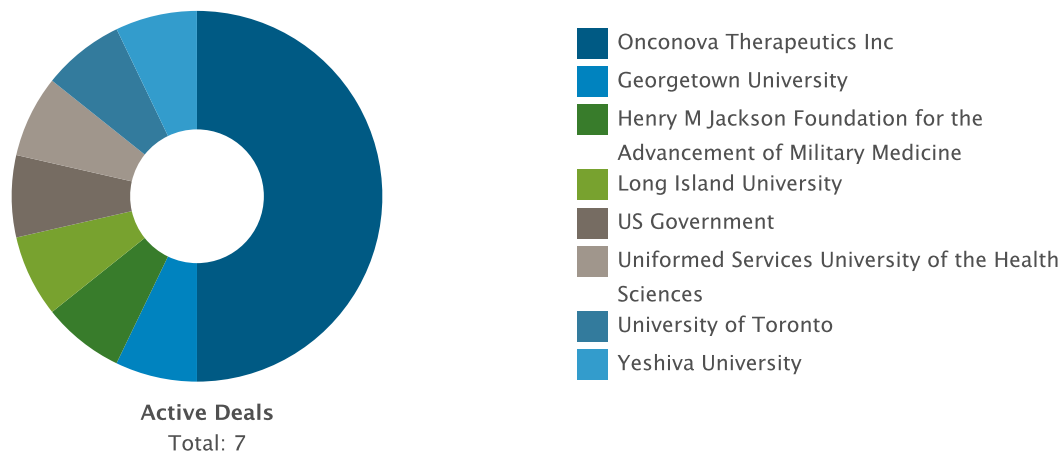
recilisib sodium (sc, radiation sickness), Onconova CLINICAL TRIALS

Total Trials by Phase and Status

Phase 4 Clinical		Phase 3 Clinical		Phase 2 Clinical		Phase 1 Clinical		Phase Unspecified		Total	
On-going	All	On-going	All	On-going	All	On-going	All	On-going	All	On-going	All
Total by Phase and Status											
0	0	0	0	0	0	0	0	0	2	0	2

DEALS

Deals by Parent Company Chart

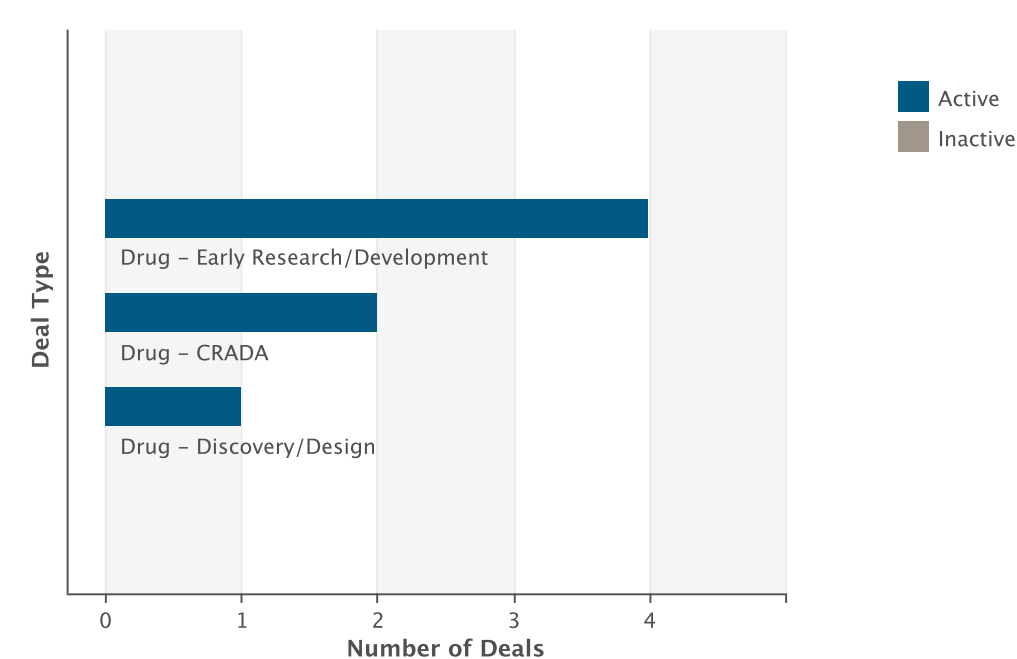


Deals by Parent Company Table

Company Name	Principal		Partner		Total
	Active	Inactive	Active	Inactive	
Onconova Therapeutics Inc	2	0	5	0	7
Long Island University	1	0	0	0	1
University of Toronto	1	0	0	0	1
Henry M Jackson Foundation for the Advancement of Military Medicine	0	0	1	0	1
Georgetown University	1	0	0	0	1
Yeshiva University	1	0	0	0	1
Uniformed Services University of the Health Sciences	1	0	0	0	1
US Government	0	0	1	0	1

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Deals by Type Chart



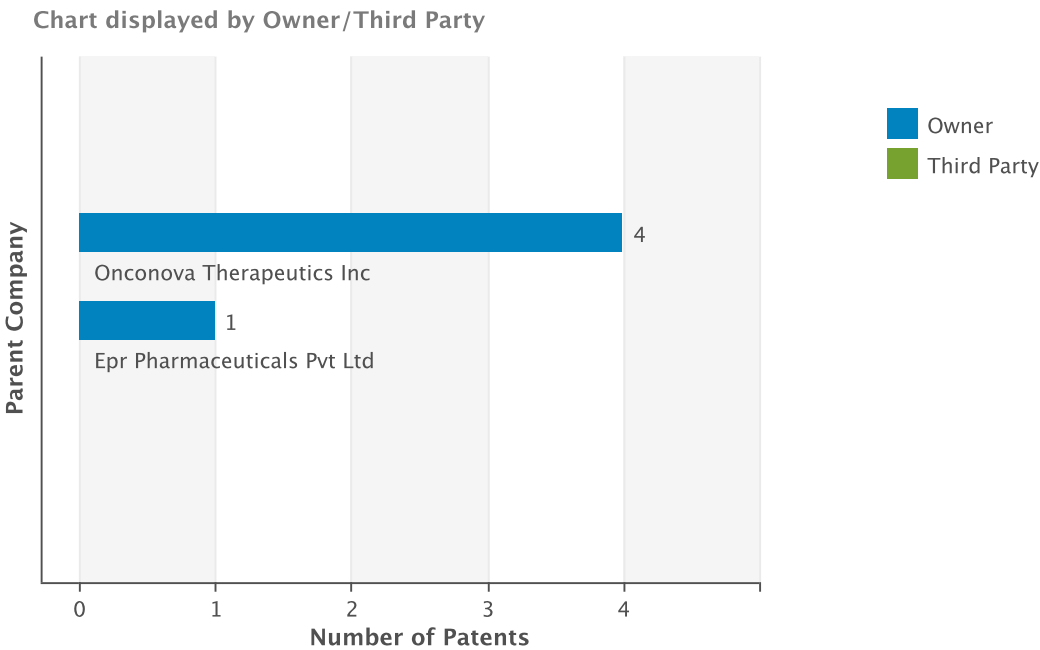
Deals by Type Table

Deal Type	Active	Inactive	Total
Drug - Early Research/Development	4	0	4
Drug - CRADA	2	0	2
Drug - Discovery/Design	1	0	1

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PATENTS

Patents by Parent Company Chart

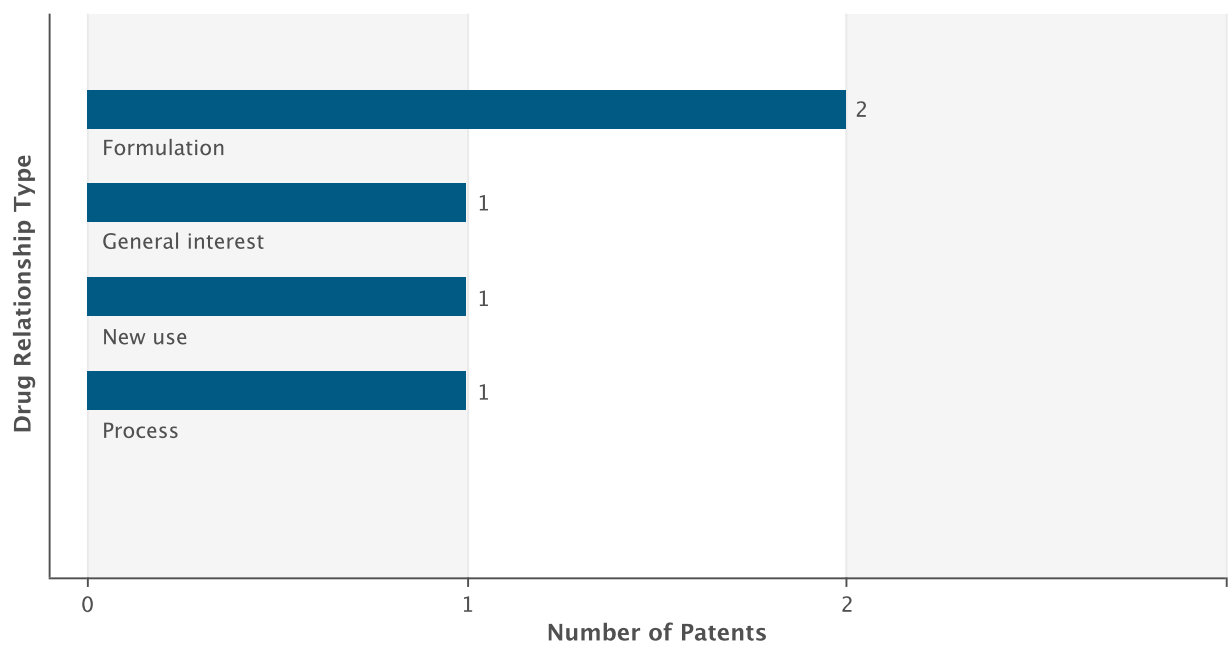


Patents by Parent Company Table

Company Name	As Owner	As Third Party	Total
Onconova Therapeutics Inc	4	0	4
Epr Pharmaceuticals Pvt Ltd	1	0	1

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Patents by Drug Relationship Type Chart



Patents by Drug Relationship Type Table

Drug Relationship	Total
Formulation	2
Process	1
General interest	1
New use	1

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ON-24160

ON-24160 SNAPSHOT

Drug Name	ON-24160
Key Synonyms	
Originator Company	Onconova Therapeutics Inc
Active Companies	Pullan Consulting;Onconova Therapeutics Inc
Inactive Companies	
Highest Status	Discovery
Active Indications	Cancer
Target-based Actions	Tubulin beta inhibitor
Other Actions	Anticancer
Technologies	Oral formulation;Small molecule therapeutic
Last Change Date	03-Apr-2013

ON-24160 DEVELOPMENT PROFILE

SUMMARY

Onconova is investigating ON-24160, a beta tubulin depolymerizer and the lead from an ON-24 series, including ON-24860, for the potential oral treatment of cancer,. In early 2004, preclinical research was ongoing. By August 2004, the company had completed all the research it intended to do on this compound until or unless a development partner or licensee could be found. However, in May 2011, the drug was listed as being in pre-IND phase ; in June 2012, this was still the case . In March 2013, the company was seeking to outlicense the program through Pullan Consulting.

ON-24160 DEVELOPMENT STATUS

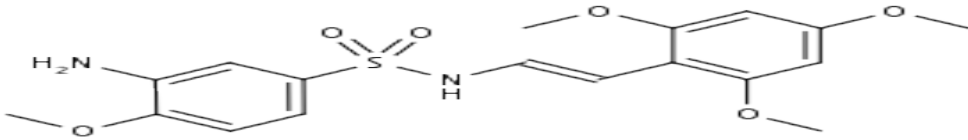
CURRENT DEVELOPMENT STATUS

Company	Indication	Country	Development Status	Date
Onconova Therapeutics Inc	Cancer	US	Discovery	18-Mar-2004
Pullan Consulting	Cancer	US	Discovery	12-Mar-2013

ON-24160 CHEMICAL STRUCTURES

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CAS Registry Number:	Confidence Level:
	4
	
Name	Type
ON-24160	Research Code

ON-24160 DRUG NAMES

Names	Type
ON-24860	Research Code
beta-tubulin polymerization inhibitors (cancer), Onconova	
beta tubulin depolymerizer (cancer), Onconova	
ON-24 series (cancer), Onconova	
ON-24160	Research Code

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ON-044580

ON-044580 SNAPSHOT

Drug Name	ON-044580
Key Synonyms	
Originator Company	Onconova Therapeutics Inc
Active Companies	Onconova Therapeutics Inc;Pullan Consulting
Inactive Companies	
Highest Status	Discovery
Active Indications	Cancer
Target-based Actions	Abl tyrosine kinase inhibitor;Jak2 tyrosine kinase inhibitor;Bcr protein inhibitor;IL-3 antagonist;STAT-5 inhibitor
Other Actions	Anticancer protein kinase inhibitor;Apoptosis stimulator
Technologies	Small molecule therapeutic
Last Change Date	20-Sep-2013

ON-044580 DEVELOPMENT PROFILE

SUMMARY

Onconova Therapeutics is investigating ON-044580, the lead from ON-04 series of non-ATP-competitive dual JAK2/Bcr-Abl kinase inhibitors, for the potential treatment of cancer,. By October 2007, preclinical studies were underway ; in June 2012, ON-044580 was listed as being in preclinical development ; in September 2013, this was still the case. In March 2013, the company was seeking to outlicense the drug through Pullan Consulting.

ON-044580 DEVELOPMENT STATUS

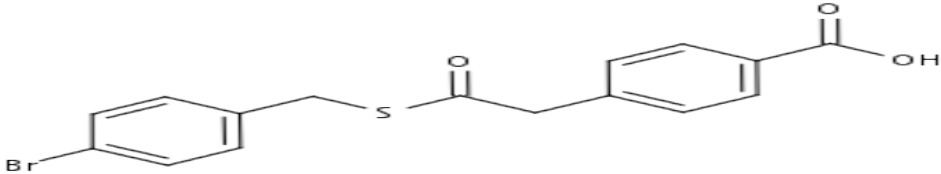
CURRENT DEVELOPMENT STATUS

Company	Indication	Country	Development Status	Date
Onconova Therapeutics Inc	Cancer	US	Discovery	23-Oct-2007
Pullan Consulting	Cancer	US	Discovery	12-Mar-2013

ON-044580 CHEMICAL STRUCTURES

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CAS Registry Number:	Confidence Level:
	4
	
Name	Type
ON-044580	Research Code

ON-044580 DRUG NAMES

Names	Type
ON-044580	Research Code
ON-04 series (cancer), Onconova	
JAK2/Bcr-Abl kinase inhibitors (cancer), Onconova	

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mitotic cell cycle inhibitors (cancer), Onconova

mitotic cell cycle inhibitors (cancer), Onconova SNAPSHOT

Drug Name	mitotic cell cycle inhibitors (cancer), Onconova
Key Synonyms	
Originator Company	Onconova Therapeutics Inc
Active Companies	Onconova Therapeutics Inc
Inactive Companies	
Highest Status	Discovery
Active Indications	Cancer
Target-based Actions	Tubulin beta inhibitor;Tubulin alpha inhibitor
Other Actions	Cell cycle inhibitor
Technologies	Small molecule therapeutic
Last Change Date	09-Nov-2013

mitotic cell cycle inhibitors (cancer), Onconova DEVELOPMENT PROFILE

SUMMARY

Onconova Therapeutics is investigating a series of mitotic cell cycle inhibitors, including ON-27110, for the potential treatment of cancer. In April 2013, preclinical data were reported.

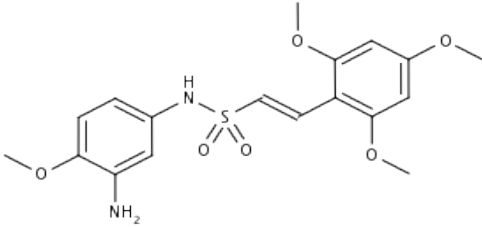
mitotic cell cycle inhibitors (cancer), Onconova DEVELOPMENT STATUS

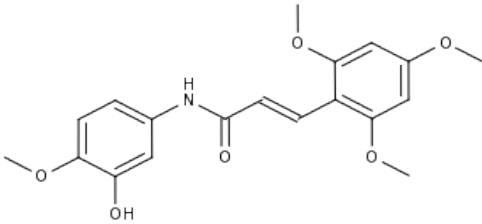
CURRENT DEVELOPMENT STATUS

Company	Indication	Country	Development Status	Date
Onconova Therapeutics Inc	Cancer	US	Discovery	24-Mar-2010

mitotic cell cycle inhibitors (cancer), Onconova CHEMICAL STRUCTURES

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CAS Registry Number:	Confidence Level:
	3
	

CAS Registry Number:	Confidence Level:
	4
	
Name	Type
ON-27110	Research Code

mitotic cell cycle inhibitors (cancer), Onconova DRUG NAMES

Names	Type
mitotic cell cycle inhibitors (cancer), Onconova	
ON-27110	Research Code

ON-1231320

ON-1231320 SNAPSHOT

Drug Name	ON-1231320
Key Synonyms	
Originator Company	Onconova Therapeutics Inc
Active Companies	Onconova Therapeutics Inc
Inactive Companies	
Highest Status	Discovery
Active Indications	Cancer
Target-based Actions	Polo-like kinase 2 inhibitor;PARP stimulator
Other Actions	Anticancer protein kinase inhibitor
Technologies	Small molecule therapeutic
Last Change Date	08-Jun-2012

ON-1231320 DEVELOPMENT PROFILE

SUMMARY

Onconova Therapeutics is investigating ON-1231320 (structure shown) from the ON-123 series of sulfonyl pyridopyrimidines, which inhibits ATP-competitive polo-like kinase 2 (Plk-2), for the potential treatment of cancer,. By January 2010, preclinical studies had begun; in March 2012, preclinical data were presented and further studies were ongoing. In June 2012, the company was seeking to outlicense the drug.

ON-1231320 DEVELOPMENT STATUS

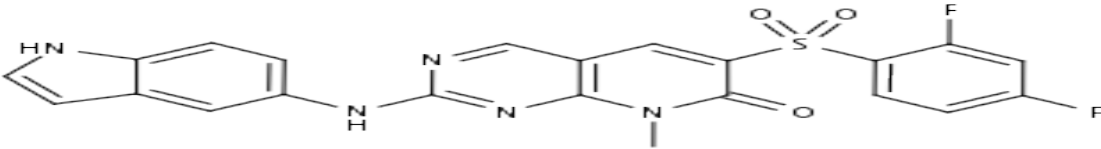
CURRENT DEVELOPMENT STATUS

Company	Indication	Country	Development Status	Date
Onconova Therapeutics Inc	Cancer	US	Discovery	11-Jan-2010

ON-1231320 CHEMICAL STRUCTURES

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CAS Registry Number:	Confidence Level:
	4
	
Name	Type
ON-1231320	Research Code

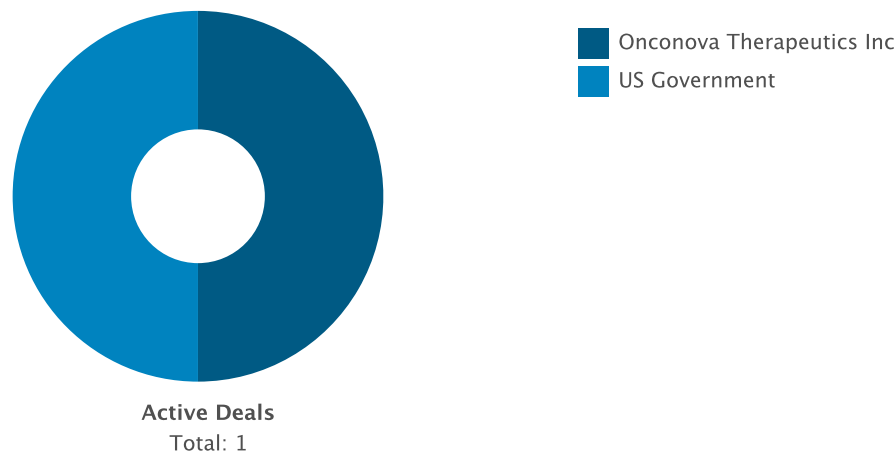
ON-1231320 DRUG NAMES

Names	Type
sulfonyl pyridopyrimidines (cancer), Onconova	
ON-123 series (cancer), Onconova	
polo-like kinase 2 inhibitors (cancer), Onconova	
ON-1231320	Research Code
Plk-2 inhibitors (cancer), Onconova	

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DEALS

Deals by Parent Company Chart

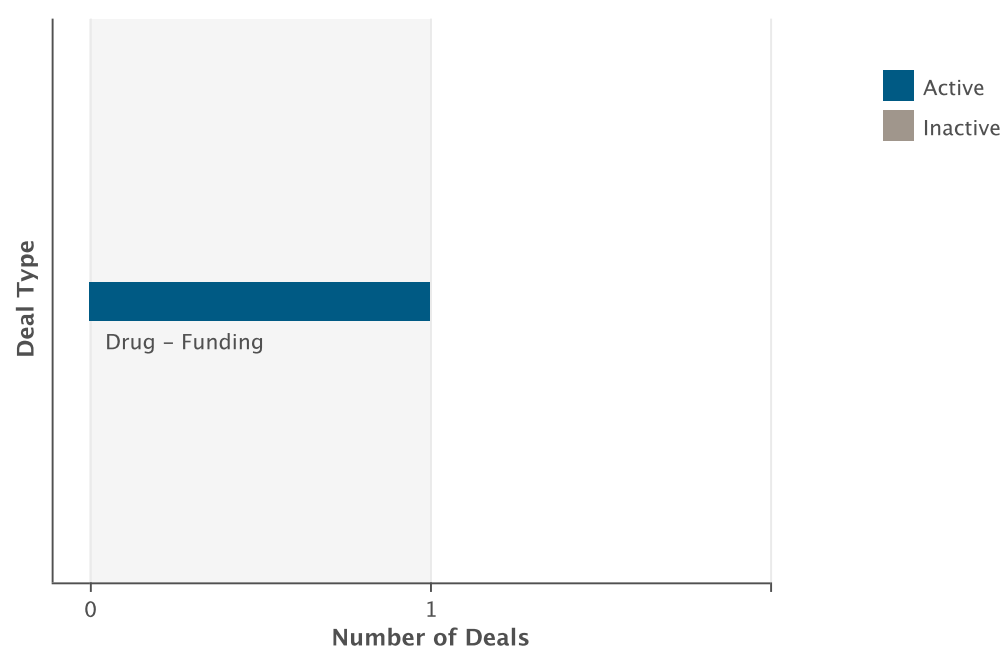


Deals by Parent Company Table

Company Name	Principal		Partner		Total
	Active	Inactive	Active	Inactive	
Onconova Therapeutics Inc	1	0	0	0	1
US Government	0	0	1	0	1

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Deals by Type Chart



Deals by Type Table

Deal Type	Active	Inactive	Total
Drug - Funding	1	0	1

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ON-123300

ON-123300 SNAPSHOT

Drug Name	ON-123300
Key Synonyms	
Originator Company	Onconova Therapeutics Inc
Active Companies	Pullan Consulting;Onconova Therapeutics Inc
Inactive Companies	
Highest Status	Discovery
Active Indications	Cancer
Target-based Actions	Cyclin-dependent kinase-4 inhibitor;NUAK SNF1-like protein kinase 1 inhibitor
Other Actions	Apoptosis stimulator;Anticancer protein kinase inhibitor
Technologies	Small molecule therapeutic
Last Change Date	19-Sep-2013

ON-123300 DEVELOPMENT PROFILE

SUMMARY

Onconova Therapeutics is investigating ON-123300 (ON-0123300), a lead ATP-competitive dual cyclin-dependent kinase 4 (CDK4)/adrenergic receptor kinase 5 (ARK5; NUAKE SNF1-like protein 1) inhibitor from the ON-123 chemotype series, for the potential treatment of cancer,. By January 2010, preclinical studies had begun. In May 2011, ON-123300 was listed as being in preclinical development ; in September 2013, this was still the case. In March 2013, the company was seeking to outlicense the drug through Pullan Consulting.

ON-123300 DEVELOPMENT STATUS

CURRENT DEVELOPMENT STATUS

Company	Indication	Country	Development Status	Date
Onconova Therapeutics Inc	Cancer	US	Discovery	11-Jan-2010
Pullan Consulting	Cancer	US	Discovery	12-Mar-2013

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ON-123300 DRUG NAMES

Names	Type
ON-0123300	Research Code
ON-123 series (cancer), Onconova	
cyclin-dependent kinase 4/adrenergic receptor kinase-5 inhibitors (cancer), Onconova	
CDK4/ARK-5 inhibitors (cancer), Onconova	
ON-123300	Research Code

ALK inhibitors (cancer), Onconova

ALK inhibitors (cancer), Onconova SNAPSHOT

Drug Name	ALK inhibitors (cancer), Onconova
Key Synonyms	
Originator Company	Onconova Therapeutics Inc
Active Companies	Onconova Therapeutics Inc
Inactive Companies	
Highest Status	Discovery
Active Indications	Cancer
Target-based Actions	Anaplastic lymphoma kinase receptor inhibitor
Other Actions	Anticancer protein kinase inhibitor
Technologies	Small molecule therapeutic
Last Change Date	26-Sep-2012

ALK inhibitors (cancer), Onconova DEVELOPMENT PROFILE

SUMMARY

Onconova is investigating ALK (anaplastic lymphoma kinase) inhibitors for the potential treatment of cancer. By December 2010, the inhibitors were in preclinical trials. In March 2012, development was ongoing.

ALK inhibitors (cancer), Onconova DEVELOPMENT STATUS

CURRENT DEVELOPMENT STATUS

Company	Indication	Country	Development Status	Date
Onconova Therapeutics Inc	Cancer	US	Discovery	03-Dec-2010

ALK inhibitors (cancer), Onconova DRUG NAMES

Names	Type
ALK inhibitors (cancer), Onconova	

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ON-108600

ON-108600 SNAPSHOT

Drug Name	ON-108600
Key Synonyms	
Originator Company	Onconova Therapeutics Inc
Active Companies	Onconova Therapeutics Inc
Inactive Companies	
Highest Status	Discovery
Active Indications	Cancer
Target-based Actions	Cyclin-dependent kinase-9 inhibitor;Casein kinase II inhibitor
Other Actions	Cell cycle inhibitor;Apoptosis stimulator;Anticancer protein kinase inhibitor
Technologies	Small molecule therapeutic
Last Change Date	01-May-2013

ON-108600 DEVELOPMENT PROFILE

SUMMARY

Onconova is investigating ON-108600, a lead ATP-competitive dual cyclin-dependent kinase 9 (CDK9)/casein kinase 2 (CK2) inhibitor, for the potential treatment of cancer. In June 2012, ON-108600 was listed as being in preclinical development. In April 2013, preclinical data were presented. In June 2012, the company was seeking to outlicense the drug .

ON-108600 DEVELOPMENT STATUS

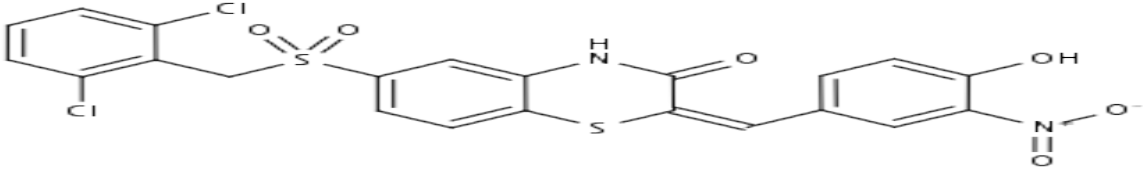
CURRENT DEVELOPMENT STATUS

Company	Indication	Country	Development Status	Date
Onconova Therapeutics Inc	Cancer	US	Discovery	08-Jun-2012

ON-108600 CHEMICAL STRUCTURES

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CAS Registry Number:	Confidence Level:
	4
	
Name	Type
ON-108600	Research Code

ON-108600 DRUG NAMES

Names	Type
ATP-competitive dual CDK9/CK2 inhibitor (cancer), Onconova	
ON-108600	Research Code

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ON-015640

ON-015640 SNAPSHOT

Drug Name	ON-015640
Key Synonyms	
Originator Company	Onconova Therapeutics Inc
Active Companies	Onconova Therapeutics Inc
Inactive Companies	
Highest Status	Discovery
Active Indications	Cancer
Target-based Actions	Tubulin antagonist
Other Actions	Anticancer
Technologies	Small molecule therapeutic
Last Change Date	22-Apr-2013

ON-015640 DEVELOPMENT PROFILE

SUMMARY

Onconova Therapeutics Inc is investigating ON-015640, from a new class of styryl benzyl sulfone and a small molecule anti-tubulin agent, for the potential treatment of cancer. In April 2013, preclinical data were presented.

ON-015640 DEVELOPMENT STATUS

CURRENT DEVELOPMENT STATUS

Company	Indication	Country	Development Status	Date
Onconova Therapeutics Inc	Cancer	US	Discovery	07-Apr-2013

ON-015640 DRUG NAMES

Names	Type
anti-tubulin agent (cancer), Onconova Therapeutics Inc	
ON-015640	Research Code

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ON-108110

ON-108110 SNAPSHOT

Drug Name	ON-108110
Key Synonyms	
Originator Company	Onconova Therapeutics Inc
Active Companies	Onconova Therapeutics Inc
Inactive Companies	
Highest Status	Discovery
Active Indications	Cancer
Target-based Actions	PIM-3 protein kinase inhibitor;Casein kinase II inhibitor
Other Actions	Apoptosis stimulator;Cell cycle inhibitor;Anticancer protein kinase inhibitor
Technologies	Small molecule therapeutic
Last Change Date	19-Apr-2013

ON-108110 DEVELOPMENT PROFILE

SUMMARY

Onconova is investigating ON-108110, a Pim kinase 3 and casein kinase 2 (CK2) inhibitor, for the potential treatment of cancer. In April 2013, preclinical data were presented.

ON-108110 DEVELOPMENT STATUS

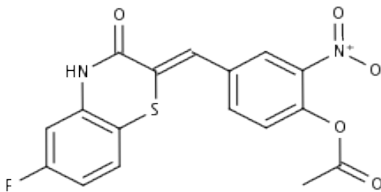
CURRENT DEVELOPMENT STATUS

Company	Indication	Country	Development Status	Date
Onconova Therapeutics Inc	Cancer	US	Discovery	07-Apr-2013

ON-108110 CHEMICAL STRUCTURES

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CAS Registry Number:	Confidence Level:
	4
	
Name	Type
ON-108110	Research Code

ON-108110 DRUG NAMES

Names	Type
Pim kinase 3/casein kinase 2 inhibitor (cancer), Onconova	
ON-108110	Research Code

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ON-146 series (cancer), Onconova

ON-146 series (cancer), Onconova SNAPSHOT

Drug Name	ON-146 series (cancer), Onconova
Key Synonyms	
Originator Company	Onconova Therapeutics Inc
Active Companies	Pullan Consulting;Onconova Therapeutics Inc
Inactive Companies	
Highest Status	Discovery
Active Indications	Hematological neoplasm
Target-based Actions	Phosphoinositide-3 kinase delta inhibitor;Phosphoinositide-3 kinase alpha inhibitor
Other Actions	Anticancer
Technologies	Small molecule therapeutic
Last Change Date	04-Jun-2013

ON-146 series (cancer), Onconova DEVELOPMENT PROFILE

SUMMARY

Onconova is investigating the ON-146 series of PI3K alpha and delta isoform selective inhibitors, for the potential treatment of hematological malignancies. In November 2012, the program was listed as being in preclinical development. In March 2013, the company was seeking to outlicense the program through Pullan Consulting.

ON-146 series (cancer), Onconova DEVELOPMENT STATUS

CURRENT DEVELOPMENT STATUS

Company	Indication	Country	Development Status	Date
Onconova Therapeutics Inc	Hematological neoplasm	US	Discovery	14-Nov-2012
Pullan Consulting	Hematological neoplasm	US	Discovery	12-Mar-2013

ON-146 series (cancer), Onconova DRUG NAMES

Names	Type
ON-146 series (cancer), Onconova	Research Code
PI3K alpha and delta isoform inhibitors (hematological malignancies), Onconova	

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ON-09300

ON-09300 SNAPSHOT

Drug Name	ON-09300
Key Synonyms	
Originator Company	Onconova Therapeutics Inc
Active Companies	Onconova Therapeutics Inc
Inactive Companies	
Highest Status	Suspended
Active Indications	Cancer
Target-based Actions	Cyclooxygenase 2 inhibitor;5-Lipoxygenase inhibitor
Other Actions	Anticancer
Technologies	Small molecule therapeutic
Last Change Date	14-Nov-2008

ON-09300 DEVELOPMENT PROFILE

SUMMARY

Onconova is investigating the ON-09 series (Oncoxib; Onconoxib) of heterocyclic dihydropyrazole dual COX-2/lipoxygenase inhibitors, including compounds ON-09300 and ON-09310, for the potential treatment of cancer. In August 2004, the company had completed all the research it intended to do on the series and was seeking to outlicense or partner the program.

ON-09300 DEVELOPMENT STATUS

CURRENT DEVELOPMENT STATUS

Company	Indication	Country	Development Status	Date
Onconova Therapeutics Inc	Cancer	US	Suspended	04-Aug-2004

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ON-09300 DRUG NAMES

Names	Type
ON-09300	Research Code
ON-09 pyrazoline series (dual COX2/lipoxygenase inhibitors), Onconova	
ON-09310	Research Code
COX2/lipoxygenase inhibitors (cancer), Onconova	
Oncoxib	

ON-01500 series, Onconova

ON-01500 series, Onconova SNAPSHOT

Drug Name	ON-01500 series, Onconova
Key Synonyms	
Originator Company	Onconova Therapeutics Inc
Active Companies	Onconova Therapeutics Inc
Inactive Companies	
Highest Status	Suspended
Active Indications	Toxicity;Cancer
Target-based Actions	Cyclin-dependent kinase-1 inhibitor
Other Actions	Cell cycle inhibitor;Anticancer protein kinase inhibitor;Chemoprotectant;Anticancer;Angiogenesis inhibitor
Technologies	Small molecule therapeutic
Last Change Date	02-Jun-2010

ON-01500 series, Onconova DEVELOPMENT PROFILE

SUMMARY

Onconova was investigating various non-ATP-binding kinase inhibitors, from the same series as the CDK1 inhibitor ON-01910 (qv) and based on the initial lead ON-01060, for multiple indications including cancer and as cytoprotectants. In early 2004, Onconova was investigating ON-01590 and other analogs as potential cytoprotectants (under the name Ameliorex) and ON-01910 was the lead for the cancer indication. However, by August 2004, the company had completed all the work it intended on the series and was seeking to outlicense the technology for ON-01500 (structure shown) and other CDK1/other cell-cycle checkpoint kinase inhibitors for various indications on a non-exclusive basis.

The company is investigating other styryl benzyl sulfones as apoptosis stimulators for the potential treatment of cancer.

CYTOPROTECTION

In vitro experiments showed that 2.5 microM of ON-01590, one of three analogs of ON-01060 designed to improve its water solubility, protected human HFL-1 fibroblasts from a cytotoxic dose of paclitaxel. Of the other two analogs tested, ON-01629 showed some cytoprotection benefits and ON-01560 did not show any activity. ON-01590 also protected mice challenged with a high dose of paclitaxel from neurotoxicity and death.

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ANTIPROLIFERATIVE ACTIVITY

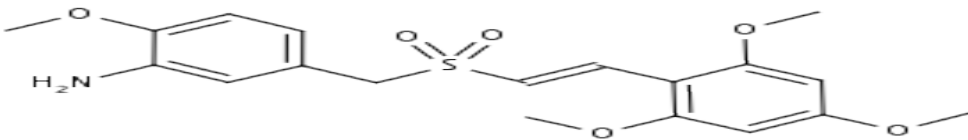
SAR studies of ON-01060 analogs, using cell-based assays to test anticancer activity, had given several anticancer leads, including ON-01370, ON-01500 and ON-01910. ON-01370 was shown to be more than 100-fold more active than ON-01060, killing over 95% of cancer cells at a concentration of less than 0.1 microM. Other compounds with activity greater than that of ON-01060 included ON-01130, ON-01220, ON-01300, ON-01250 and ON-01330. ON-01370, ON-01500 and ON-01910 demonstrated potent anti-angiogenic activity in an in vitro endothelial cord formation assay and other assays carried out by the NCI and Onconova's collaborators at the University of Illinois. ON-01370 also showed in vivo activity in a xenograft breast cancer nude mouse model.

ON-01500 series, Onconova DEVELOPMENT STATUS

CURRENT DEVELOPMENT STATUS

Company	Indication	Country	Development Status	Date
Onconova Therapeutics Inc	Cancer	US	Suspended	04-Aug-2004
Onconova Therapeutics Inc	Toxicity	US	Suspended	04-Aug-2004

ON-01500 series, Onconova CHEMICAL STRUCTURES

CAS Registry Number:	Confidence Level:
	4
	
Name	Type
ON-01500	Research Code

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ON-01500 series, Onconova DRUG NAMES

Names	Type
ON-01220	Research Code
CDK1 inhibitors, Onconova	
ON-01500 series, Onconova	
ON-01560	Research Code
ON-01370	Research Code
ON-01500	Research Code
Amerliorex	
ON-01910 analogs, Onconova	
styryl benzyl sulfones (cell cycle checkpoint activators), Onconova	
ON-01060	Research Code
ON-01130	Research Code
ON-01250	Research Code
cell cycle checkpoint activators (cytoprotection), Onconova	
ON-01300	Research Code
ON-01590	Research Code
ON-01330	Research Code
ON-01060 derivatives, Onconova	
ON-01620	Research Code
Novonex analogs, Onconova	

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ON-09250

ON-09250 SNAPSHOT

Drug Name	ON-09250
Key Synonyms	
Originator Company	Onconova Therapeutics Inc
Active Companies	Onconova Therapeutics Inc
Inactive Companies	
Highest Status	Suspended
Active Indications	Central nervous system disease;Inflammatory disease
Target-based Actions	Cyclooxygenase 2 inhibitor
Other Actions	Anti-inflammatory
Technologies	Small molecule therapeutic
Last Change Date	09-Aug-2004

ON-09250 DEVELOPMENT PROFILE

SUMMARY

ON-09250, a COX2 inhibitor from the ON-09 series of hererocyclic dihydropyrazoles (qv), was under investigation by Onconova for the potential treatment of inflammation. By early 2004, Onconova had completed all the work it intended on the compound and was seeking to outlicense it for inflammation although by August 2004, the indication listed for outlicensing was CNS disorders.

ON-09250 DEVELOPMENT STATUS

CURRENT DEVELOPMENT STATUS

Company	Indication	Country	Development Status	Date
Onconova Therapeutics Inc	Central nervous system disease	US	Suspended	04-Aug-2004
Onconova Therapeutics Inc	Inflammatory disease	US	Suspended	18-Mar-2004

ON-09250 DRUG NAMES

Names	Type
ON-09250	Research Code
COX2 inhibitors (CNS disease), Onconova	
COX2 inhibitors (inflammation), Onconova	

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