

Calithera Biosciences

CORTELLIS COMPANY DETAILED PIPELINE REPORT

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

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[Return to Table of Contents](#)



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[Return to Table of Contents](#)



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i.e. where the development status for the drug(s) is one of the following: No Development Reported, Discontinued, or Withdrawn.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.

[Return to Table of Contents](#)



TABLE OF CONTENTS

Company Overview..... 5

Company Profile..... 6

Product Portfolio Summary..... 6

Product Portfolio Drug Pipeline Detail..... 10

 Phase 1 Clinical..... 11

 Discovery..... 15

[Return to Table of Contents](#)

Calithera Biosciences

COMPANY OVERVIEW

Company Name	Calithera Biosciences
Parent Company Name	Calithera Biosciences
Website	http://www.calithera.com/
Country	US
Number of Drugs in Active Development	4
Number of Inactive Drugs	1
Number of Patents as Owner	6
Number of Patents as Third Party	0
Number of Deals	4
Key Indications	Cancer,Advanced solid tumor,Hematological neoplasm,Autoimmune disease,Cardiovascular disease,Gastrointestinal disease,Infectious disease,Lung disease,Wound healing,Autoimmune hemolytic anemia,Erectile dysfunction,Multiple sclerosis,Sexual dysfunction,Thalassemia
Key Target-based Actions	Mcl-1 differentiation protein inhibitor,Arginase-I inhibitor,Arginase-II inhibitor,Mitochondrial kidney glutaminase inhibitor
Key Technologies	Small molecule therapeutic,Oral formulation

COMPANY PROFILE

SUMMARY

Calithera Biosciences, founded in 2010 with technology licensed from the University of California, San Francisco, is focused on the development of cancer therapies based on the activation of caspase and other enzymes.

FINANCIAL

In October 2014, the company priced its initial public offering of 8 million shares of common stock at \$10 per share. The underwriters were granted a 30-day option to purchase up to 1.2 million additional shares of common stock. At that time, the common stock of the company began trading on the NASDAQ global select market, under the ticker symbol "CALA".

In October 2013, Calithera raised \$35 million in series D financing.

In July 2010, Calithera raised \$40 million in a series A financing.

[Return to Table of Contents](#)

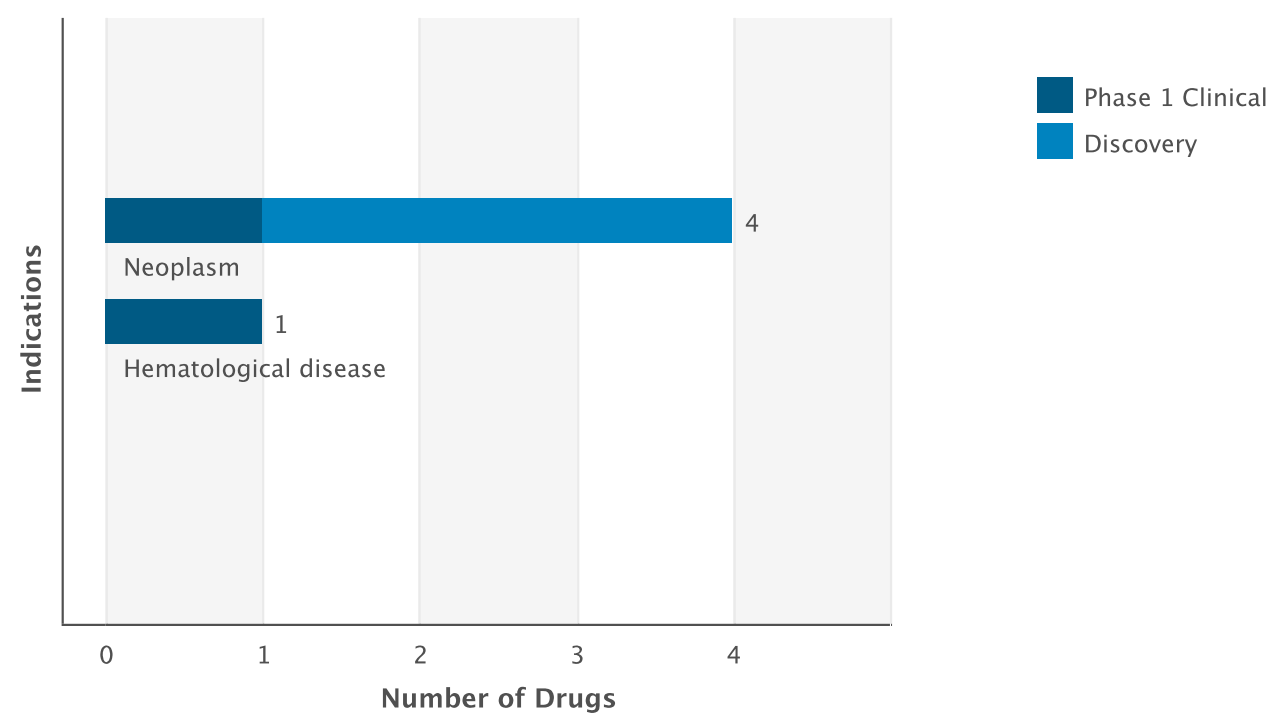


PRODUCT PORTFOLIO SUMMARY

DRUGS

Drugs by Indication

Active Drugs by Indication Chart



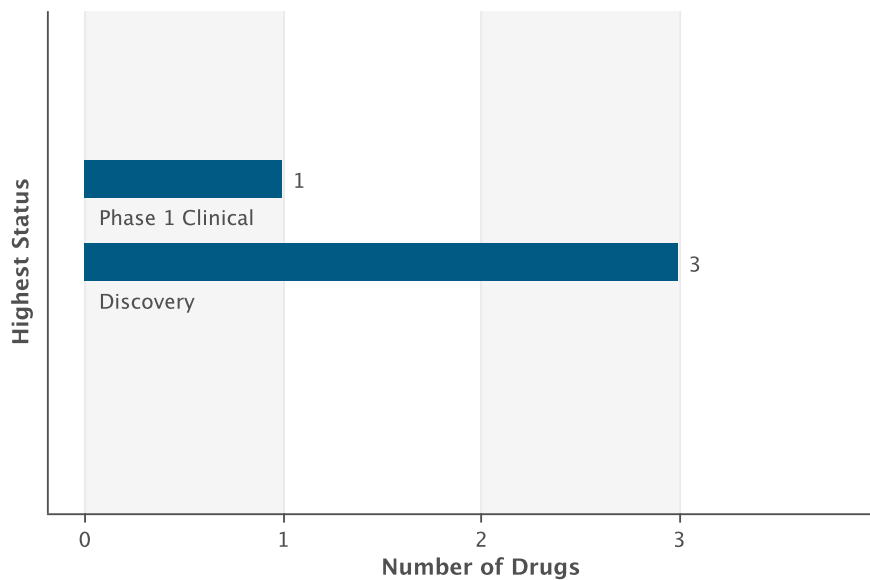
Drugs by Indication Table

Indication	Active	Inactive	Total
Neoplasm	4	1	5
Hematological disease	1	0	1

[Return to Table of Contents](#)

Drugs by Highest Status

Active Drugs by Highest Status Chart



Drugs by Highest Status Table

Development Status	Number of Drugs
Phase 1 Clinical	1
Discovery	3
No Development Reported	1

DEALS

Deal Type	Principal		Partner		Total
	Active	Inactive	Active	Inactive	
Drug - Early Research/Development	0	0	1	0	1
Drug - Development/Commercialization License	0	0	3	0	3

[Return to Table of Contents](#)

CLINICAL TRIALS

Trials by Condition Studied

Condition Studied	Ongoing	All
Neoplasm	3	3
Hematological disease	2	2
Gynecology and obstetrics	1	1
Genitourinary disease	1	1
Respiratory disease	1	1
Gastrointestinal disease	1	1
Endocrine disease	1	1
Immune disorder	1	1

Trials by Phase

Phase	Ongoing	All
Phase 1	3	3

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	4	0	4
Endocrine disease	2	0	2
Gastrointestinal disease	4	0	4
Genitourinary disease	5	0	5
Hematological disease	4	0	4
Andrology	2	0	2
Immune disorder	6	0	6
Neoplasm	2	0	2

[Return to Table of Contents](#)



Genetic disorder	2	0	2
Metabolic disorder	2	0	2
Neurological disease	4	0	4
Respiratory disease	5	0	5
Infectious disease	3	0	3
Injury	3	0	3
Inflammatory disease	2	0	2
Gynecology and obstetrics	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.

[Return to Table of Contents](#)

PRODUCT PORTFOLIO DRUG PIPELINE DETAIL

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

CB-839

CB-839 SNAPSHOT

Drug Name	CB-839
Key Synonyms	
Originator Company	Calithera Biosciences
Active Companies	Sanford-Burnham Medical Research Institute;Calithera Biosciences
Inactive Companies	
Highest Status	Phase 1 Clinical
Active Indications	Hematological neoplasm;Advanced solid tumor
Target-based Actions	
Other Actions	Apoptosis stimulator;Synergist;Cell cycle inhibitor;Glutaminase inhibitor;Anticancer
Technologies	Oral formulation;Small molecule therapeutic
Last Change Date	27-Mar-2015

CB-839 DEVELOPMENT PROFILE

SUMMARY

Calithera, in collaboration with Sanford-Burnham is developing CB-839, a lead from a program of glutaminase inhibitors for the potential oral treatment of cancer,. In February 2014, three phase I trials were initiated in patients with advanced solid tumors and hematological cancers including advanced multiple myeloma and non-Hodgkin's lymphoma. In September 2014, two phase Ib trials were planned to begin in late 2014 . In November 2014, the company was planning to initiate phase II trials in late 2015 or in early 2016.

CB-839 DEVELOPMENT STATUS

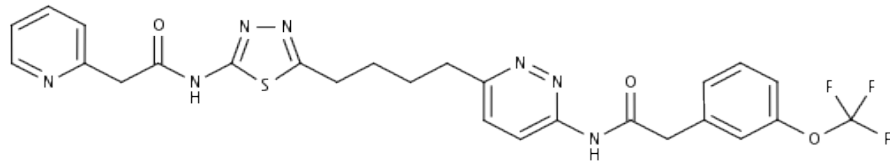
CURRENT DEVELOPMENT STATUS

Company	Indication	Country	Development Status	Date
Calithera Biosciences	Advanced solid tumor	US	Phase 1 Clinical	24-Feb-2014
Calithera Biosciences	Hematological neoplasm	US	Phase 1 Clinical	24-Feb-2014
Sanford-Burnham Medical Research Institute	Advanced solid tumor	US	Phase 1 Clinical	24-Feb-2014
Sanford-Burnham Medical Research Institute	Hematological neoplasm	US	Phase 1 Clinical	24-Feb-2014

[Return to Table of Contents](#)



CB-839 CHEMICAL STRUCTURES

CAS Registry Number:	Confidence Level:
	3
	
Name	Type
CB-839	Research Code

CB-839 DRUG NAMES

Names	Type
CB-839	Research Code
glutaminase inhibitors (oral, cancer), Calithera Bioscience	

CB-839 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
Mesothelioma											
0	0	0	0	0	0	1	1	0	0	1	1
Hematological neoplasm											
0	0	0	0	0	0	1	1	0	0	1	1
Gastrointestinal stromal tumor											
0	0	0	0	0	0	1	1	0	0	1	1

[Return to Table of Contents](#)

Non-small-cell lung cancer											
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
Renal cell carcinoma											
0	0	0	0	0	0	1	1	0	0	1	1
Advanced solid tumor											
0	0	0	0	0	0	1	1	0	0	1	1
Multiple myeloma											
0	0	0	0	0	0	1	1	0	0	1	1
Non-Hodgkin lymphoma											
0	0	0	0	0	0	1	1	0	0	1	1
Breast tumor											
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	3	3	0	0	3	3

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

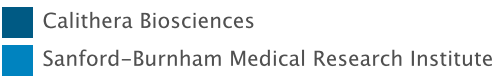
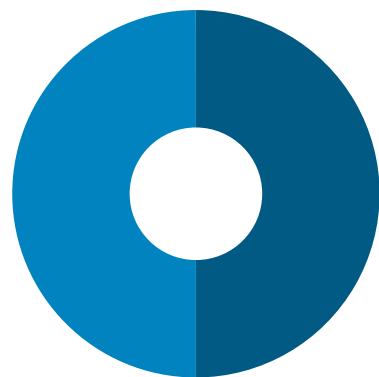
Includes Phase 1, Phase 1a, Phase 1, Phase 1/2 (where enrolment count is under 100 or not specified), Phase 0

[Return to Table of Contents](#)

CB-839 DEALS AND PATENTS

DEALS

Deals by Parent Company Chart

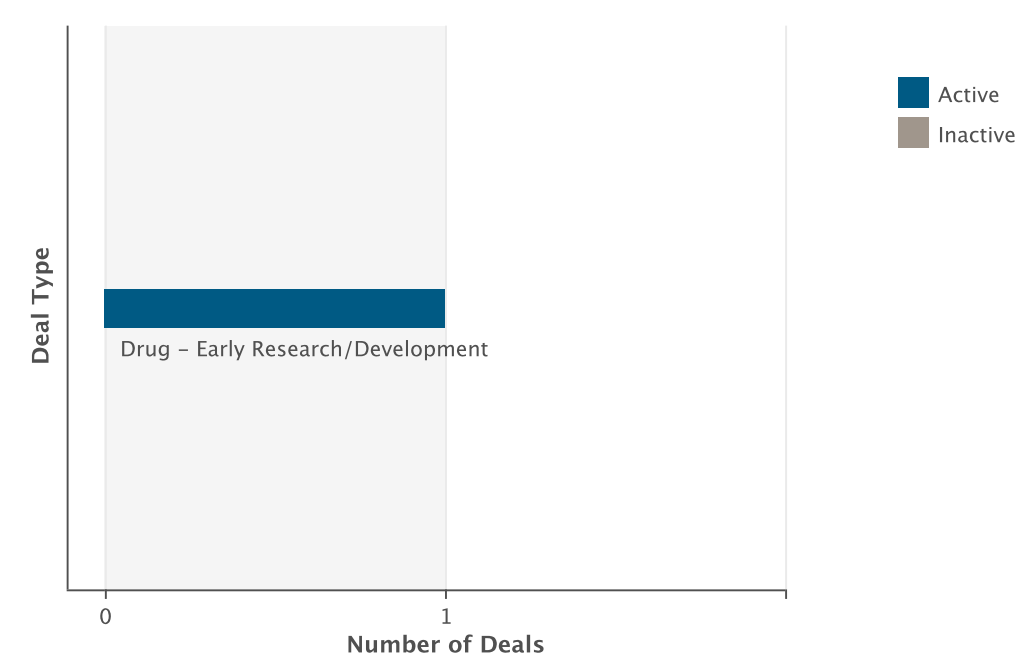


Deals by Parent Company Table

Company Name	Principal		Partner		Total
	Active	Inactive	Active	Inactive	
Sanford-Burnham Medical Research Institute	1	0	0	0	1
Calithera Biosciences	0	0	1	0	1

[Return to Table of Contents](#)

Deals by Type Chart



Deals by Type Table

Deal Type	Active	Inactive	Total
Drug - Early Research/Development	1	0	1

[Return to Table of Contents](#)

arginase inhibitors (cancer), Calithera Biosciences

arginase inhibitors (cancer), Calithera Biosciences SNAPSHOT

Drug Name	arginase inhibitors (cancer), Calithera Biosciences
Key Synonyms	
Originator Company	Mars Symbioscience
Active Companies	Calithera Biosciences
Inactive Companies	Mars Symbioscience
Highest Status	Discovery
Active Indications	Cancer
Target-based Actions	Arginase inhibitor
Other Actions	Anticancer
Technologies	Small molecule therapeutic
Last Change Date	05-Jan-2015

arginase inhibitors (cancer), Calithera Biosciences DEVELOPMENT PROFILE

SUMMARY

Calithera Biosciences, under license from Mars Symbioscience, is investigating arginase inhibitors for the potential treatment of cancer. In September 2014, Calithera planned to file an IND application in the US by the end of 2015 to initiate a phase I trial in 2016.

arginase inhibitors (cancer), Calithera Biosciences DEVELOPMENT STATUS

CURRENT DEVELOPMENT STATUS

Company	Indication	Country	Development Status	Date
Calithera Biosciences	Cancer	US	Discovery	30-Sep-2014
Mars Symbioscience	Cancer	US	Discontinued	09-Dec-2014

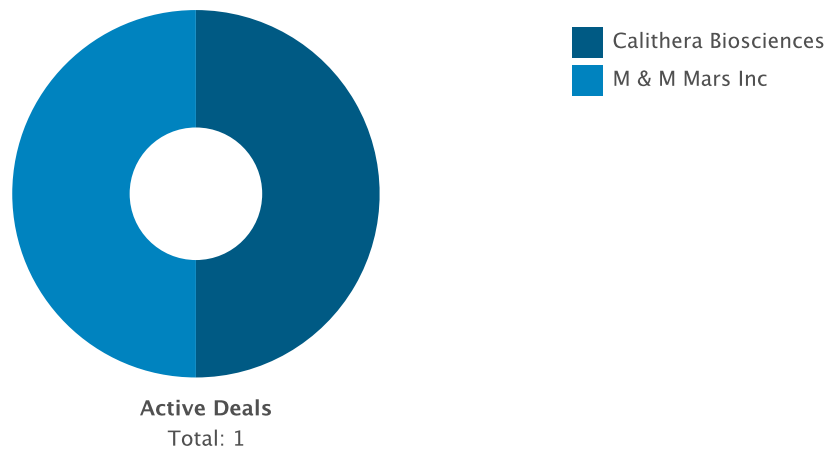
arginase inhibitors (cancer), Calithera Biosciences DRUG NAMES

Names	Type
arginase inhibitors (cancer), Calithera Biosciences	

[Return to Table of Contents](#)

DEALS

Deals by Parent Company Chart

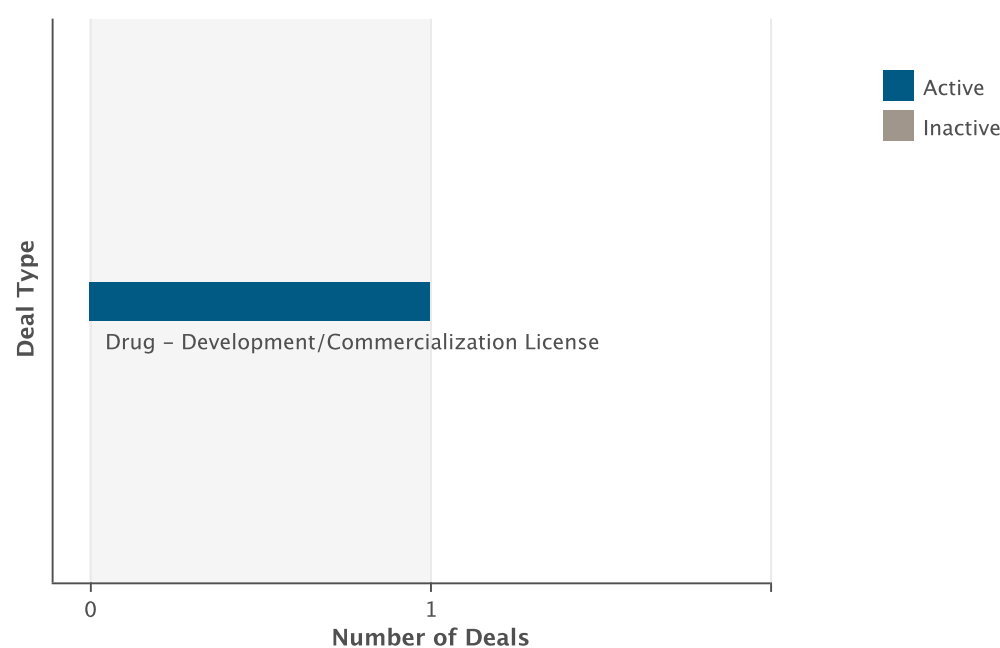


Deals by Parent Company Table

Company Name	Principal		Partner		Total
	Active	Inactive	Active	Inactive	
M & M Mars Inc	1	0	0	0	1
Calithera Biosciences	0	0	1	0	1

[Return to Table of Contents](#)

Deals by Type Chart



Deals by Type Table

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

[Return to Table of Contents](#)

Mcl-1 inhibitors (cancer), Calithera Biosciences

Mcl-1 inhibitors (cancer), Calithera Biosciences SNAPSHOT

Drug Name	Mcl-1 inhibitors (cancer), Calithera Biosciences
Key Synonyms	
Originator Company	Calithera Biosciences
Active Companies	Calithera Biosciences
Inactive Companies	
Highest Status	Discovery
Active Indications	Cancer
Target-based Actions	Mcl-1 differentiation protein inhibitor
Other Actions	Apoptosis stimulator;Anticancer
Technologies	Small molecule therapeutic
Last Change Date	02-Nov-2013

Mcl-1 inhibitors (cancer), Calithera Biosciences DEVELOPMENT PROFILE

SUMMARY

Calithera Biosciences is investigating a program of small molecule selective Mcl-1 inhibitors for the potential treatment of cancer. Preclinical studies were ongoing by October 2013.

Mcl-1 inhibitors (cancer), Calithera Biosciences DEVELOPMENT STATUS

CURRENT DEVELOPMENT STATUS

Company	Indication	Country	Development Status	Date
Calithera Biosciences	Cancer	US	Discovery	29-Oct-2013

Mcl-1 inhibitors (cancer), Calithera Biosciences DRUG NAMES

Names	Type
Mcl-1 inhibitors (cancer), Calithera Biosciences	

[Return to Table of Contents](#)



hexokinase 2 inhibitors (cancer), Calithera

hexokinase 2 inhibitors (cancer), Calithera SNAPSHOT

Drug Name	hexokinase 2 inhibitors (cancer), Calithera
Key Synonyms	
Originator Company	TransTech Pharma Inc
Active Companies	Calithera Biosciences
Inactive Companies	TransTech Pharma Inc
Highest Status	Discovery
Active Indications	Cancer
Target-based Actions	Hexokinase 2 inhibitor
Other Actions	Cell cycle inhibitor;Anticancer
Technologies	Small molecule therapeutic
Last Change Date	06-Mar-2015

hexokinase 2 inhibitors (cancer), Calithera DEVELOPMENT PROFILE

SUMMARY

Calithera Biosciences, under license from TransTech Pharma, is investigating hexokinase 2 inhibitors, for the potential treatment of cancer,. In February 2012, the program was listed as being in preclinical testing ; in November 2013, preclinical studies were ongoing. In February 2015, this was still the case.

hexokinase 2 inhibitors (cancer), Calithera DEVELOPMENT STATUS

CURRENT DEVELOPMENT STATUS

Company	Indication	Country	Development Status	Date
Calithera Biosciences	Cancer	US	Discovery	05-Mar-2015
TransTech Pharma Inc	Cancer	US	Discontinued	05-Mar-2015

hexokinase 2 inhibitors (cancer), Calithera DRUG NAMES

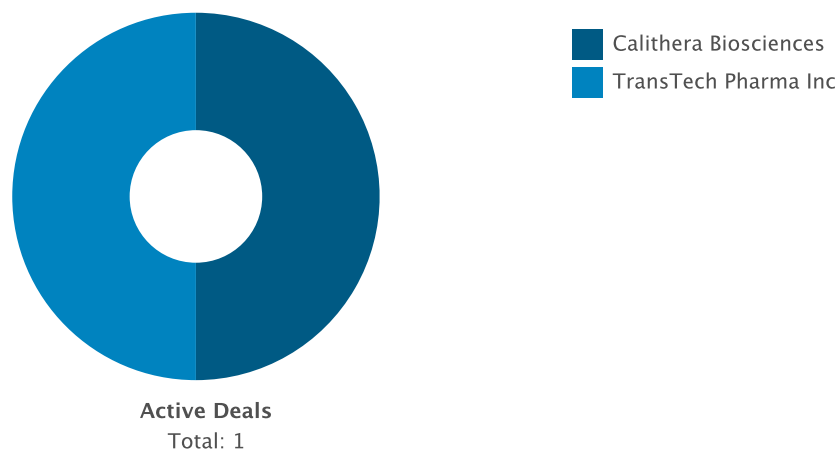
Names	Type
hexokinase 2 inhibitors (cancer), TransTech Pharma	
hexokinase 2 inhibitors (cancer), Calithera	

[Return to Table of Contents](#)



DEALS

Deals by Parent Company Chart

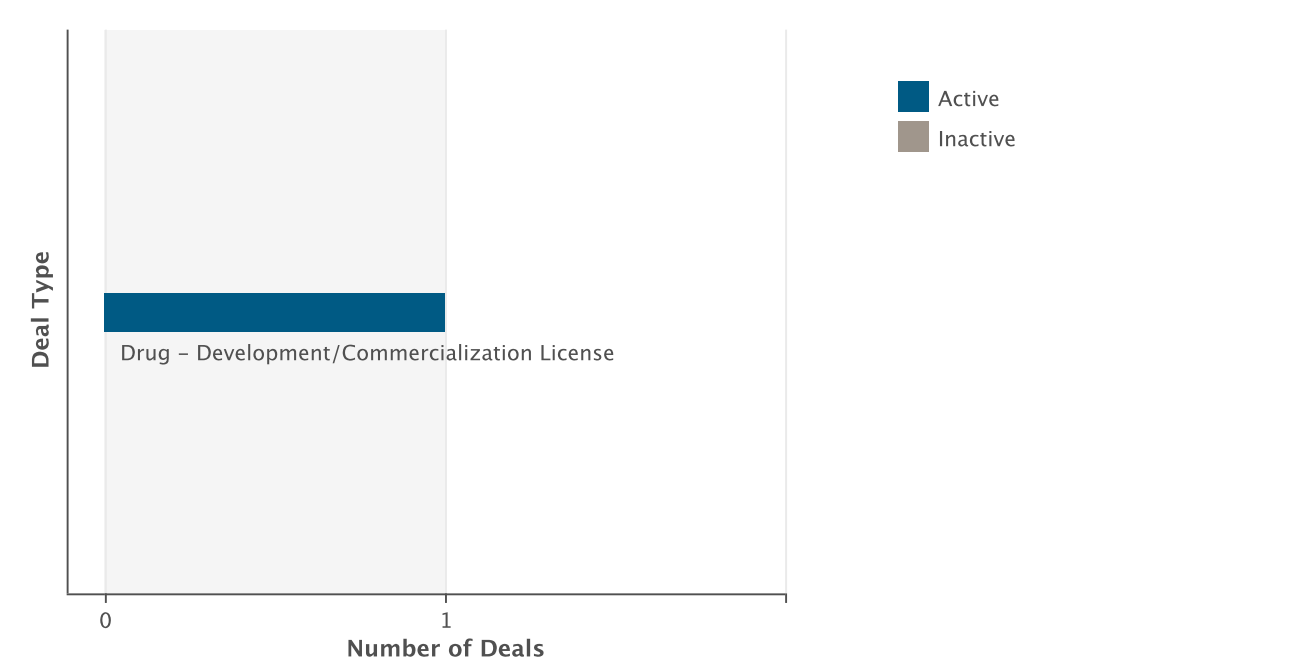


Deals by Parent Company Table

Company Name	Principal		Partner		Total
	Active	Inactive	Active	Inactive	
Calithera Biosciences	0	0	1	0	1
TransTech Pharma Inc	1	0	0	0	1

[Return to Table of Contents](#)

Deals by Type Chart



Deals by Type Table

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

[Return to Table of Contents](#)

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[Return to Table of Contents](#)

