

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i.e. where the development status for the drug(s) is one of the following: No Development Reported, Discontinued, or Withdrawn.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

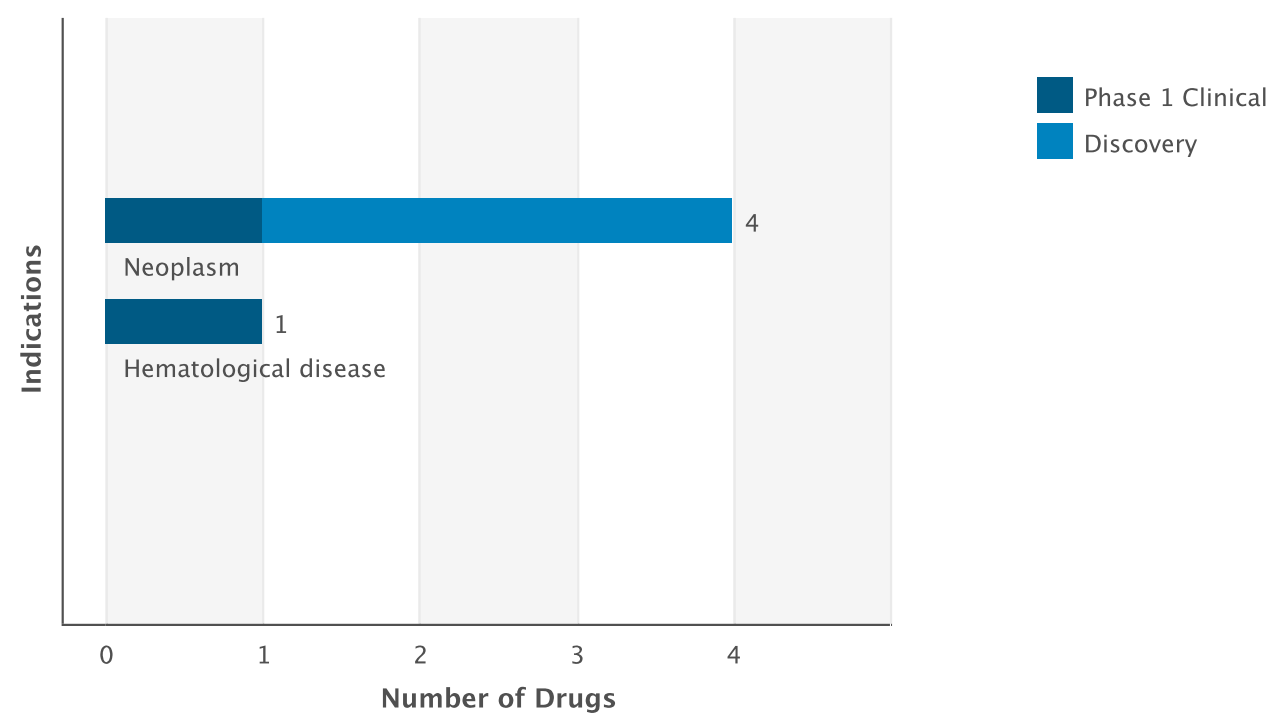
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PRODUCT PORTFOLIO SUMMARY

DRUGS

Drugs by Indication

Active Drugs by Indication Chart



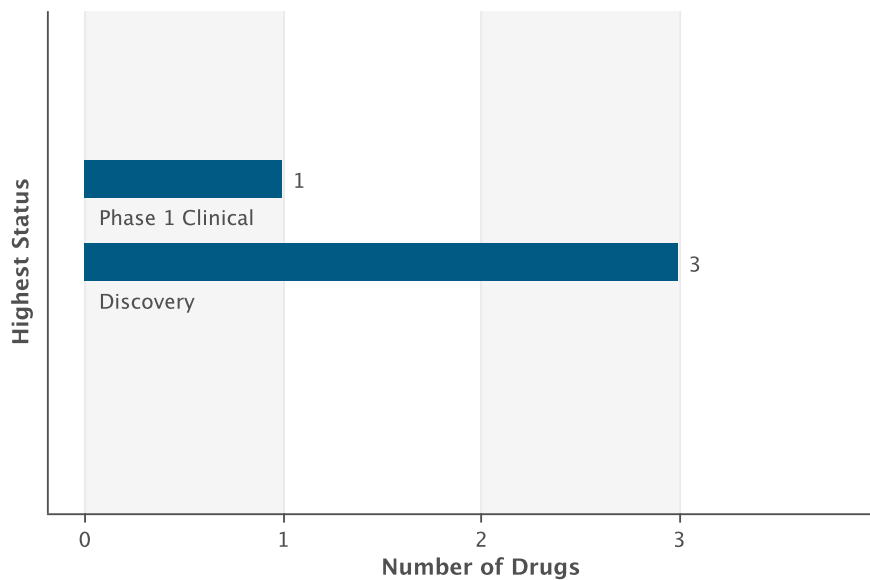
Drugs by Indication Table

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

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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 |

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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 |

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| | | | |
|---------------------------|---|---|---|
| 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.

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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

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

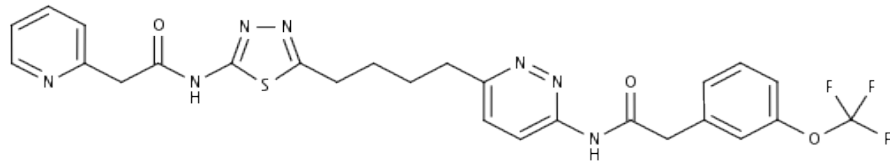
CURRENT DEVELOPMENT STATUS

| 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 |

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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 |

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| | | | | | | | | | | | |
|----------------------------|---|---|---|---|---|---|---|---|---|---|---|
| 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

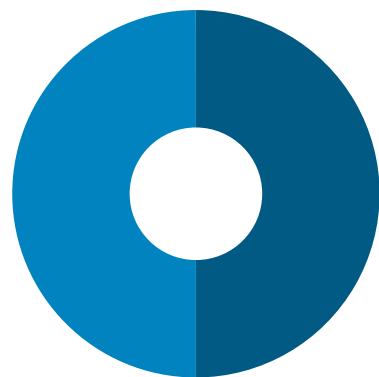
Includes Phase 1, Phase 1a, Phase 1, Phase 1/2 (where enrolment count is under 100 or not specified), Phase 0

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CB-839 DEALS AND PATENTS

DEALS

Deals by Parent Company Chart



Active Deals
Total: 1

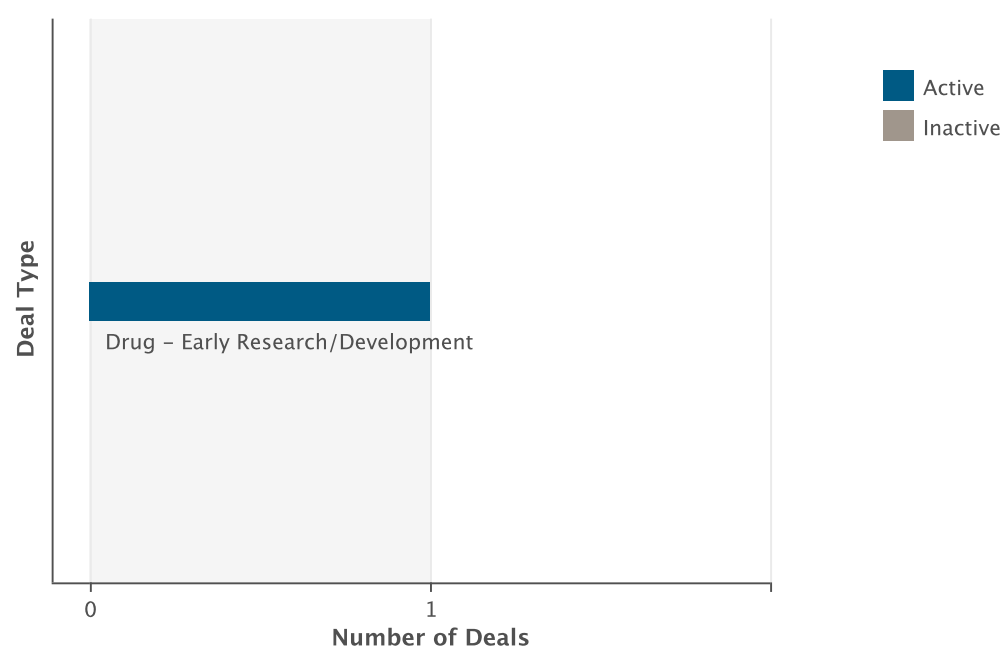
- Calithera Biosciences
- Sanford-Burnham Medical Research Institute

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 |

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Deals by Type Chart



Deals by Type Table

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

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 |

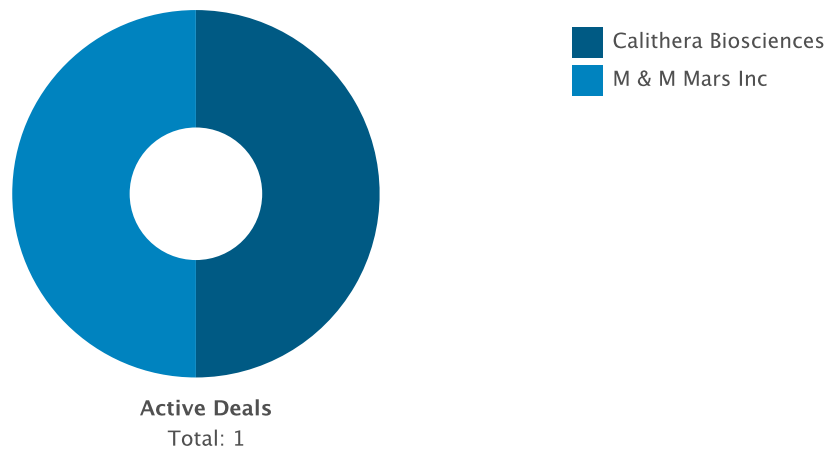
arginase inhibitors (cancer), Calithera Biosciences DRUG NAMES

| Names | Type |
|---|------|
| arginase inhibitors (cancer), Calithera Biosciences | |

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DEALS

Deals by Parent Company Chart

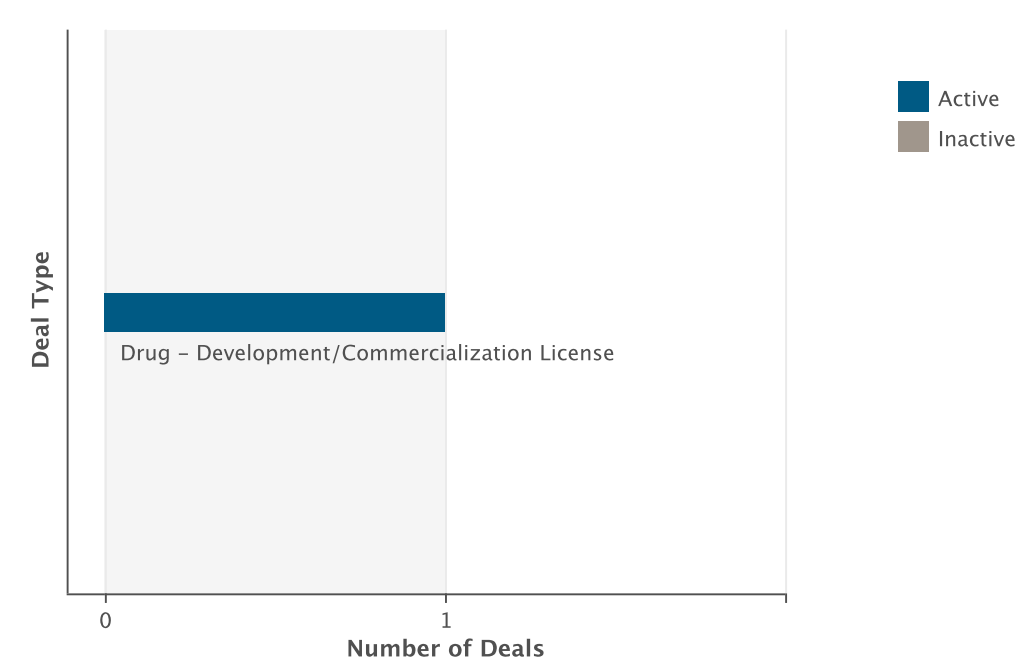


Deals by Parent Company Table

| 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 |

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Deals by Type Chart



Deals by Type Table

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

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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 | |

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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

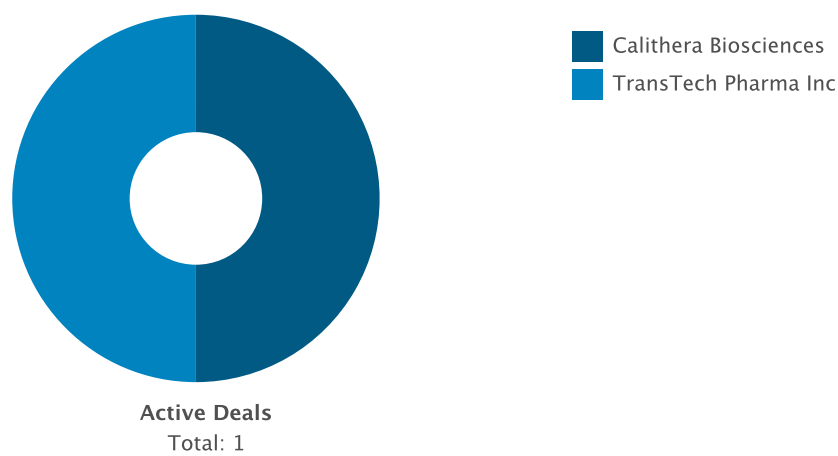
| Names | Type |
|--|------|
| hexokinase 2 inhibitors (cancer), TransTech Pharma | |
| hexokinase 2 inhibitors (cancer), Calithera | |

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DEALS

Deals by Parent Company Chart

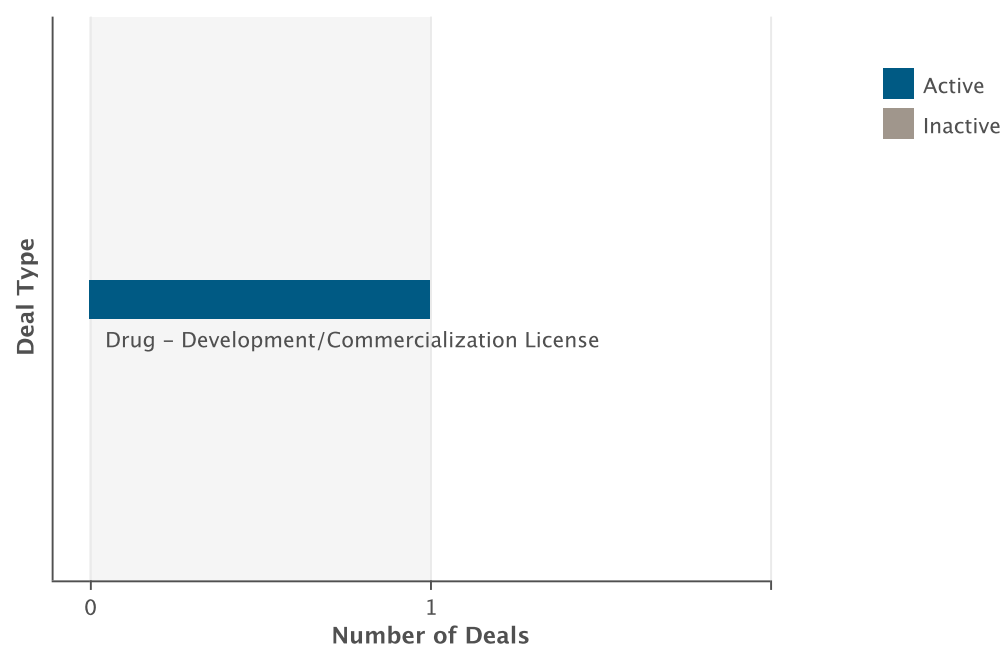


Deals by Parent Company Table

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

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Deals by Type Chart



Deals by Type Table

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

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