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Celladon Corp

COMPANY AND PIPELINE OVERVIEW REPORT

Coverage of the company and a summary of the drug pipeline portfolio.

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ABOUT COMPANY AND PIPELINE OVERVIEW REPORT

Thomson Reuters provides the knowledge, tools, and expertise to help support drug discovery and development activities, IP portfolio optimization, identification of licensing and partnering opportunities, delivery of successful regulatory submissions, and the ability to keep current with the rapidly-changing pharmaceutical and chemical markets, supporting informed, early decisions.

This report was created by Thomson Reuters, using information from *Thomson Reuters Cortellis™ for Competitive Intelligence*; a comprehensive, proven intelligence solution that leverages the most accurate, complete, and widely respected drug pipeline information.From drug discovery and development activities to patent reports, the latest deals, and partnering opportunities, *Cortellis* can provide the confidence to make the most informed business decisions, faster. *Cortellis for Competitive Intelligence* provides accurateand validated information on pharmaceutical and biotechnology companies globally, their drug pipelines, deals, patents, and clinical trials, plus breaking industry news and conference coverage. All contained in one simple, highly intuitive research platform.

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i.e. where the development status for the drug(s) is one of the following: No Development Reported, Discontinued, or Withdrawn.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

COMPANY OVERVIEW

Company Name	Celladon Corp
Parent Company Name	Celladon Corp
Website	http://www.celladon.net/
Country	US
Number of Drugs in Active Development	4
Number of Inactive Drugs	0
Number of Patents as Owner	8
Number of Patents as Third Party	1
Number of Deals	5
Key Indications	Cardiac failure,Congestive heart failure,Diabetes mellitus,Pulmonary artery hypertension,Pulmonary hypertension,Cancer,Restenosis,Alzheimers disease,Asthma,Cardiovascular disease,Heart arrhythmia,Heart transplant rejection,Ischemia,Myocardial infarction,Urinary incontinence
Key Target-based Actions	Sarco endoplasmic calcium ATPase 2a stimulator,Sarco endoplasmic calcium ATPase 2b stimulator,ATP2A2 gene stimulator,Sarco endoplasmic calcium ATPase 2 modulator,Sarco endoplasmic calcium ATPase 2a modulator,Cardiac phospholamban modulator,NAD-dependent deacetylase sirtuin-1 stimulator,NFAT gene stimulator,NFKB gene stimulator,SUMO1 gene stimulator,Sarco endoplasmic calcium ATPase 2b modulator,Sarco endoplasmic calcium ATPase modulator,Small ubiquitin related modifier 1 modulator,TP53 gene stimulator,Zinc finger protein gene stimulator
Key Technologies	Small molecule therapeutic,Gene transfer system viral,Drug screening,Assay,Fluorescence,Gene transfer system,Immunodetection,Labeling system,Peptide,Polynucleotide sequence,Protein fusion,Vector expression,Virus recombinant

COMPANY PROFILE

SUMMARY

Celladon Corp, based in La Jolla, CA, develops molecular therapies for congestive heart failure. The company's first generation product enhances calcium cycling in the heart, delivered via a recombinant adeno-associated viral (rAAV) vector.

LOCATION

In May 2012, the company was to establish a subsidiary in The Netherlands to manage its European-based activities.

LICENSING AGREEMENTS

In November 2009, Celladon acquired exclusive rights to a technology from University of Minnesota to develop molecular therapies for cardiovascular diseases. The technology, measured by Fluorescence Resonance Energy Transfer (FRET), provides increased screening efficiency of compounds able to disrupt protein interactions that is implicated in cardiovascular disease. University of Minnesota received undisclosed funding from Celladon fo refine the assay further.

In January 2005, Targeted Genetics entered an agreement with Celladon to develop AAV-based gene therapy targeting the SERCA2a pathway for the treatment of congestive heart failure. Targeted Genetics agreed to commit $2 million towards the development, manufacture and preclinical development of the therapy, and Celladon would cover all other development, manufacture and preclinical development costs. Targeted Genetics would receive milestone payments and royalties. In March 2009, the agreement was amended where Celladon could use AAV in an expanded field. The company could use contract manufacturing organizations to manufacture Mydicar.

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In October 2013, Celladon filed a registration statement S-1 form with the US Securities and Exchange Commission for a planned IPO of common stock. In January 2014, Celladon priced the underwritten public offering of 5.5 million common stock shares at $8.00 per share. The underwriters were granted a 30-day option to purchase up to an additional 825,000 shares to cover overallotments. At that time, the offering was scheduled to close on February 04, 2014.

In January 2014, the company's shares were traded under the symbol "CLDN" on the NASDAQ Global Market on January 30, 2014.

In February 2012, Celladon completed a $43 million equity financing. In May 2012, the company announced additional capital proceeds from a second close of the financing, bringing the total capital proceeds to $53 million.

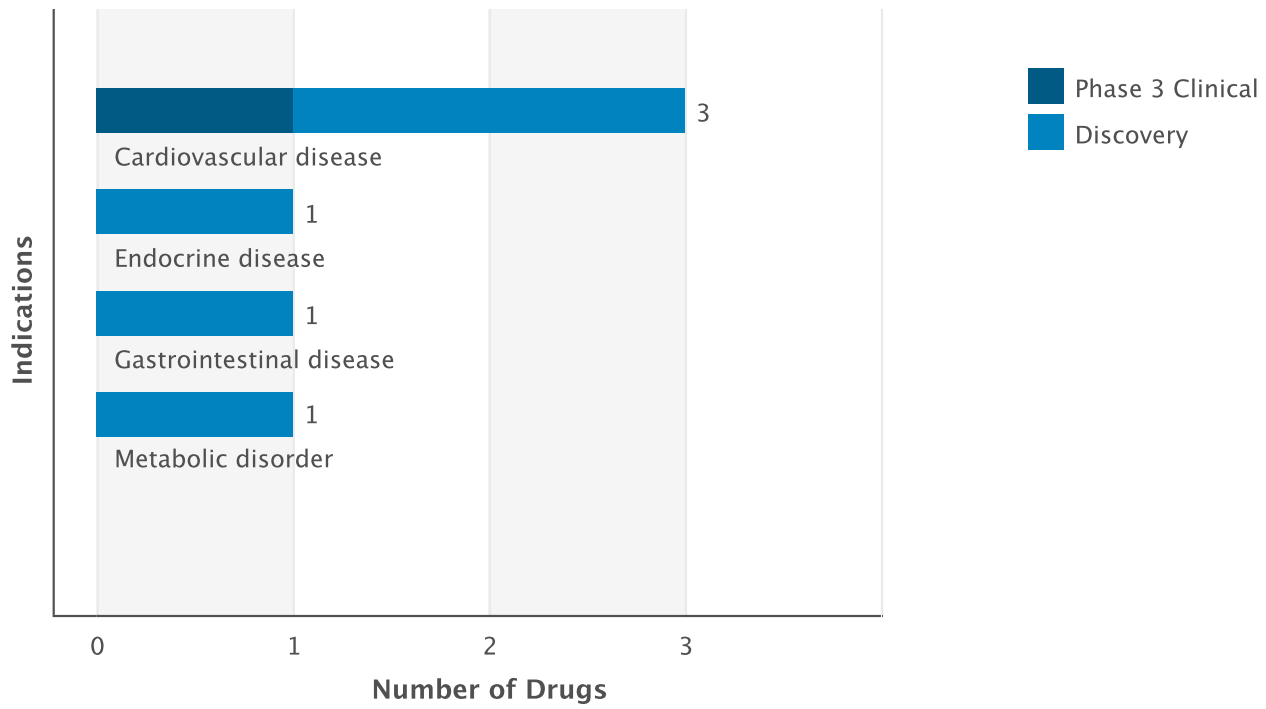
In December 2005, Celladon raised $30 million in a series B venture financing.

PRODUCT PORTFOLIO SUMMARY

DRUGS

Drugs by Indication

Active Drugs by Indication Chart



Drugs by Indication Table

Indication	Active	Inactive	Total
Cardiovascular disease	3	0	3
Metabolic disorder	1	0	1
Endocrine disease	1	0	1
Gastrointestinal disease	1	0	1

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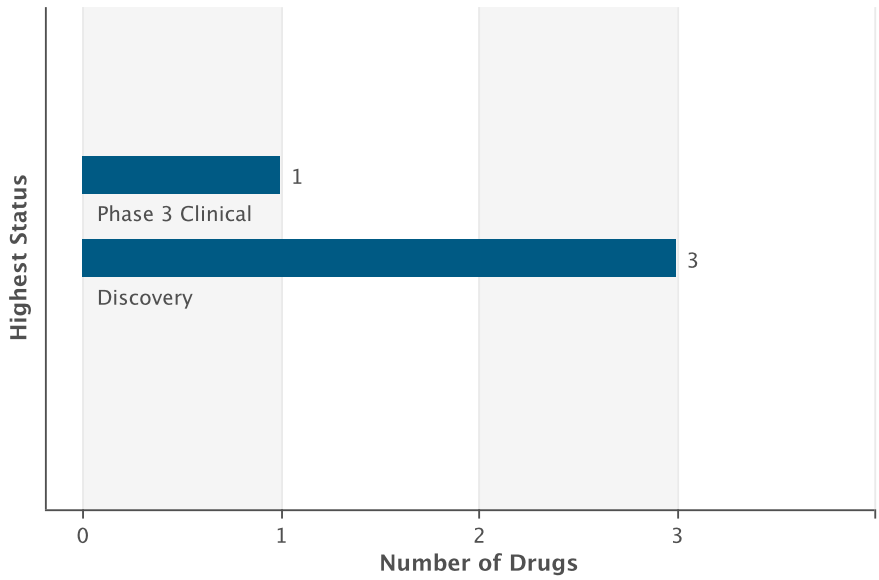
Drugs by Highest Status

Active Drugs by Highest Status Chart



Drugs by Highest Status Table

Development Status	Number of Drugs
Phase 3 Clinical	1
Discovery	3

DEALS

Deal Type	Principal		Partner		Total
	Active	Inactive	Active	Inactive	
Technology - Other Proprietary	0	0	1	0	1
Drug - Funding	1	0	0	0	1
Drug - Development/Commercialization License	0	0	2	0	2
Drug - Manufacturing/Supply	0	0	1	0	1

CLINICAL TRIALS

Trials by Condition Studied

Condition Studied	Ongoing	All
Cardiovascular disease	2	3

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Trials by Phase

Phase	Ongoing	All
Phase 2	2	2
Phase 1	0	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
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	6	1	7
Endocrine disease	1	0	1
Gastrointestinal disease	1	0	1
Genitourinary disease	2	0	2
Degeneration	1	0	1
Immune disorder	3	0	3
Neoplasm	2	0	2
Metabolic disorder	2	0	2
Neurological disease	1	0	1
Respiratory disease	1	0	1
Inflammatory disease	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 DRUGS

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

Mydicar

Drug Name	Mydicar
Key Synonyms	Mydicar
Originator Company	AmpliPhi Biosciences Corp
Active Companies	Celladon Corp
Inactive Companies	AmpliPhi Biosciences Corp
Highest Status	Phase 3 Clinical
Active Indications	Congestive heart failure
Target-based Actions	Sarco endoplasmic calcium ATPase 2a modulator
Other Actions	Adeno-associated virus based gene therapy, Cardioprotectant
Technologies	Intra-arterial formulation, Infusion, Biological therapeutic, Gene transfer system viral
Last Change Date	12-Dec-2013

SERCA2b agonists (diabetes), Celladon

Drug Name	SERCA2b agonists (diabetes), Celladon
Key Synonyms	
Originator Company	Celladon Corp
Active Companies	Celladon Corp
Inactive Companies	
Highest Status	Discovery
Active Indications	Diabetes mellitus
Target-based Actions	Sarco endoplasmic calcium ATPase 2b stimulator
Other Actions	Hypoglycemic agent
Technologies	Small molecule therapeutic
Last Change Date	24-Jan-2013

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SERCA 2a gene therapy (inhalant, pulmonary artery hypertension), Celladon

Drug Name	SERCA 2a gene therapy (inhalant, pulmonary artery hypertension), Celladon
Key Synonyms	Mydicar
Originator Company	Mount Sinai School of Medicine
Active Companies	Celladon Corp
Inactive Companies	Mount Sinai School of Medicine
Highest Status	Discovery
Active Indications	Pulmonary artery hypertension
Target-based Actions	Sarco endoplasmic calcium ATPase 2a modulator
Other Actions	Antihypertensive, Adeno-associated virus based gene therapy
Technologies	Inhalant formulation, Biological therapeutic, Gene transfer system viral
Last Change Date	18-Nov-2013

SERCA 2a activators (heart failure), Celladon

Drug Name	SERCA 2a activators (heart failure), Celladon
Key Synonyms	
Originator Company	Celladon Corp
Active Companies	Celladon Corp
Inactive Companies	
Highest Status	Discovery
Active Indications	Cardiac failure
Target-based Actions	Sarco endoplasmic calcium ATPase 2a stimulator
Other Actions	Cardiac agent
Technologies	Small molecule therapeutic
Last Change Date	13-Sep-2011

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