

Zafgen 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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THOMSON REUTERS

3 Times Square
New York, New York 10036
United States

Tel: +1 646 223 4000

thomsonreuters.com

[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i.e. where the development status for the drug(s) is one of the following: No Development Reported, Discontinued, or Withdrawn.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 2 Clinical..... 11

 Discovery..... 16

[Return to Table of Contents](#)

COMPANY OVERVIEW

Company Name	Zafgen Inc
Parent Company Name	Zafgen Inc
Website	http://www.zafgen.com/
Country	US
Number of Drugs in Active Development	3
Number of Inactive Drugs	3
Number of Patents as Owner	32
Number of Patents as Third Party	0
Number of Deals	3
Key Indications	Obesity,Non-insulin dependent diabetes,Non-alcoholic steatohepatitis,Brain tumor,Non alcoholic fatty liver disease,Prader-Willi syndrome,Weight gain,Weight loss,Angiogenesis disorder,Cardiovascular disease,Metabolic disorder,Stroke
Key Target-based Actions	Methionine aminopeptidase-2 inhibitor,C-reactive protein inhibitor,Thioredoxin stimulator,Methionine aminopeptidase-2 modulator
Key Technologies	Small molecule therapeutic,Oral formulation,Subcutaneous formulation,Natural product,Crystalline form,Formulation preservation,Intravenous formulation,Oligonucleotide antisense

COMPANY PROFILE

SUMMARY

Zafgen, founded in 2005, is a private venture-backed biopharmaceutical company that develops obesity therapeutics based on vascular targeting in adipose tissue.

COMPANY LOCATION

The company is based in Cambridge, MA.

LICENSING AGREEMENTS

In January 2009, Argenta Discovery and Zafgen signed an agreement to research and discover therapeutics for the treatment of obesity.

In August 2008, Anthill and Zafgen entered into an agreement where Anthill was to use its ACOS high-speed synthesis and purification capabilities to assist Zafgen in lead compounds identification for its obesity programs.

FINANCIAL

In June 2014, Zafgen announced an IPO of 6,000,000 shares of its common stock priced at \$16 per share. At that time, underwriters were granted a 30-day option to purchase up to an additional 900,000 shares of common stock to cover any over-allotments. The shares were traded on the NASDAQ Global Market under the ticker symbol "ZFGN". Later that month, the offering was closed and at that time, the over-allotment option was fully exercised.

In April 2014, the company closed \$20 million term loan with Oxford Finance LLC and MidCap Financial.

In December 2013, Zafgen raised \$45 million in a series E equity financing round.

In December 2012, Zafgen raised \$21 million in a series D equity financing.

In July 2011, Zafgen raised \$33 million in a series C financing.

[Return to Table of Contents](#)

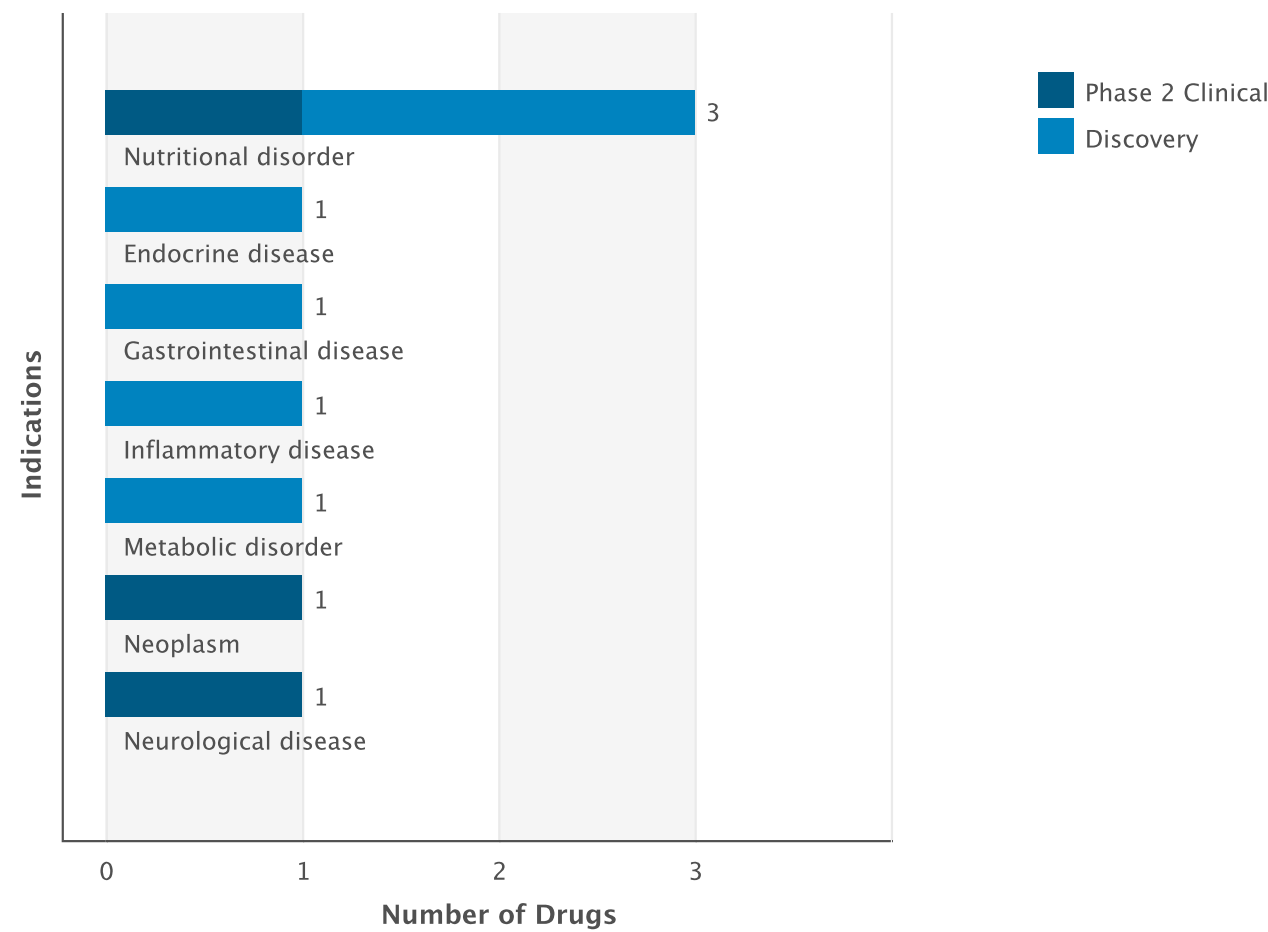


PRODUCT PORTFOLIO SUMMARY

DRUGS

Drugs by Indication

Active Drugs by Indication Chart



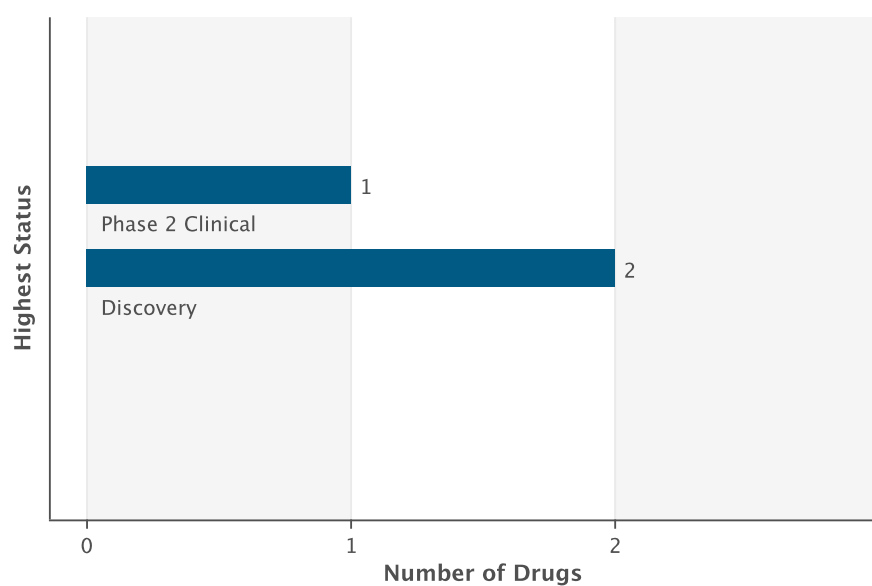
[Return to Table of Contents](#)

Drugs by Indication Table

Indication	Active	Inactive	Total
Nutritional disorder	3	3	6
Gastrointestinal disease	1	1	2
Metabolic disorder	1	1	2
Endocrine disease	1	1	2
Neurological disease	1	0	1
Inflammatory disease	1	0	1
Neoplasm	1	0	1

Drugs by Highest Status

Active Drugs by Highest Status Chart



Drugs by Highest Status Table

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

[Return to Table of Contents](#)

DEALS

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

CLINICAL TRIALS

Trials by Condition Studied

Condition Studied	Ongoing	All
Nutritional disorder	2	7

Trials by Phase

Phase	Ongoing	All
Phase 3	1	1
Phase 2	1	3
Phase 1	0	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	6	0	6
Endocrine disease	4	0	4
Gastrointestinal disease	5	0	5
Genitourinary disease	3	0	3
Growth disorder	1	0	1
Degeneration	2	0	2
Andrology	1	0	1

[Return to Table of Contents](#)



Psychiatric disorder	2	0	2
Musculoskeletal disease	3	0	3
Neoplasm	2	0	2
Genetic disorder	1	0	1
Metabolic disorder	5	0	5
Neurological disease	3	0	3
Nutritional disorder	25	0	25
Respiratory disease	1	0	1
Infectious disease	2	0	2
Injury	1	0	1
Inflammatory disease	2	0	2
Fatigue	1	0	1
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

beloranib (sc, obesity/Prader-Willi syndrome/craniopharyngioma), Zafgen

beloranib (sc, obesity/Prader-Willi syndrome/craniopharyngioma), Zafgen SNAPSHOT

Drug Name	beloranib (sc, obesity/Prader-Willi syndrome/craniopharyngioma), Zafgen
Key Synonyms	beloranib
Originator Company	Chong Kun Dang Pharmaceutical Corp
Active Companies	Zafgen Inc
Inactive Companies	Chong Kun Dang Pharmaceutical Corp
Highest Status	Phase 2 Clinical
Active Indications	Obesity;Brain tumor;Prader-Willi syndrome
Target-based Actions	Methionine aminopeptidase-2 inhibitor
Other Actions	Anticancer;Lipid metabolism modulator
Technologies	Subcutaneous formulation;Small molecule therapeutic
Last Change Date	11-Jul-2014

beloranib (sc, obesity/Prader-Willi syndrome/craniopharyngioma), Zafgen DEVELOPMENT PROFILE

SUMMARY

Zafgen, under license from Chong Kun Dang (CKD) Pharmaceutical, is developing ZGN-440, an twice-weekly sc formulation of the methionine aminopeptidase 2 (MetAP2) inhibitor beloranib, for the potential treatment of obesity, Prader-Willi syndrome and craniopharyngioma,. In August 2012, the company initiated a phase II trial ; in November 2013, results were presented. In June 2013, a phase II trial for Prader-Willi syndrome was initiated in the US ; in January 2014, initial data were reported. In March 2014, the drug was listed as being in phase II development. At that time, a phase IIa trial for craniopharyngioma and a phase IIb trial for severe obesity were expected to begin in the first- and second-half of 2014, respectively. In June 2014, a phase III study for Prader-Willi syndrome was expected to begin in September 2014; at that time, the study was expected to complete in November 2015.

beloranib (sc, obesity/Prader-Willi syndrome/craniopharyngioma), Zafgen DEVELOPMENT STATUS

CURRENT DEVELOPMENT STATUS

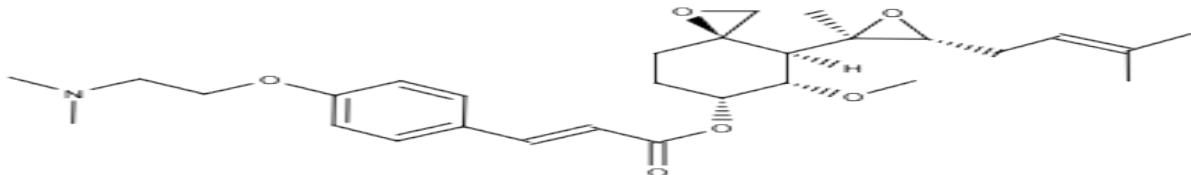
Company	Indication	Country	Development Status	Date
Zafgen Inc	Brain tumor	US	Phase 2 Clinical	31-Mar-2014
Zafgen Inc	Obesity	Australia	Phase 2 Clinical	30-Aug-2012
Zafgen Inc	Prader-Willi syndrome	US	Phase 2 Clinical	25-Jun-2013

[Return to Table of Contents](#)



Company	Indication	Country	Development Status	Date
Zafgen Inc	Prader-Willi syndrome	Europe	Discovery	13-May-2014
Chong Kun Dang Pharmaceutical Corp	Obesity	US	Discontinued	06-Nov-2008

beloranib (sc, obesity/Prader-Willi syndrome/craniopharyngioma), Zafgen CHEMICAL STRUCTURES

CAS Registry Number:	Confidence Level:
251111-30-5	2
	
Name	Type
beloranib	INN

beloranib (sc, obesity/Prader-Willi syndrome/craniopharyngioma), Zafgen DRUG NAMES

Names	Type
beloranib	INN
ZGN-440	Research Code
beloranib (sc, obesity/Prader-Willi syndrome/craniopharyngioma), Zafgen	
beloranib (sc, obesity), Zafgen	

beloranib (sc, obesity/Prader-Willi syndrome/craniopharyngioma), Zafgen 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
Obesity											
0	0	0	0	1	2	0	1	0	0	1	3
Prader-Willi syndrome											
0	0	1	1	0	1	0	0	0	0	1	2

[Return to Table of Contents](#)

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	1	1	1	3	0	1	0	0	2	5

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)

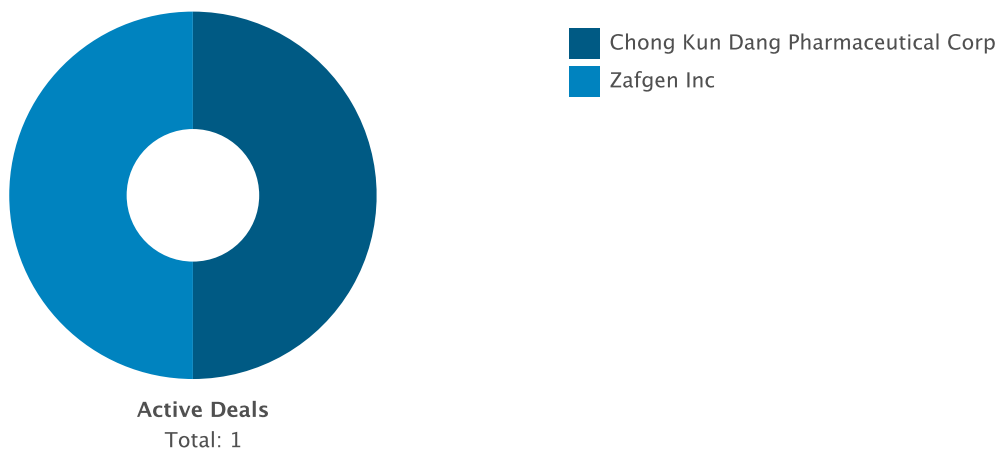
Phase 1 Clinical

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

beloranib (sc, obesity/Prader-Willi syndrome/craniopharyngioma), Zafgen DEALS AND PATENTS

DEALS

Deals by Parent Company Chart

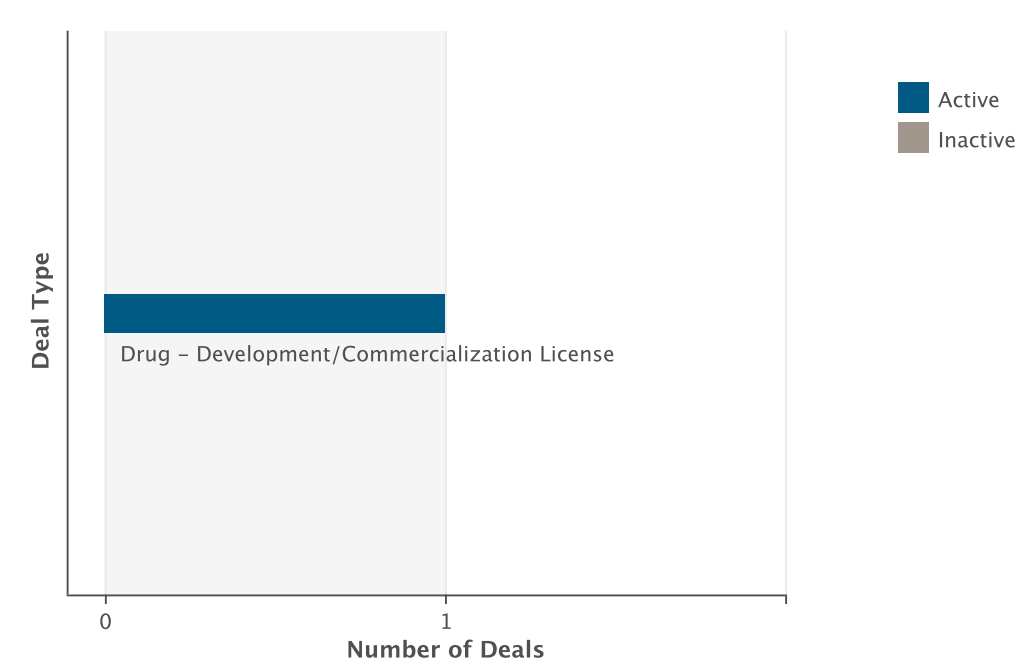


[Return to Table of Contents](#)

Deals by Parent Company Table

Company Name	Principal		Partner		Total
	Active	Inactive	Active	Inactive	
Chong Kun Dang Pharmaceutical Corp	1	0	0	0	1
Zafgen Inc	0	0	1	0	1

Deals by Type Chart



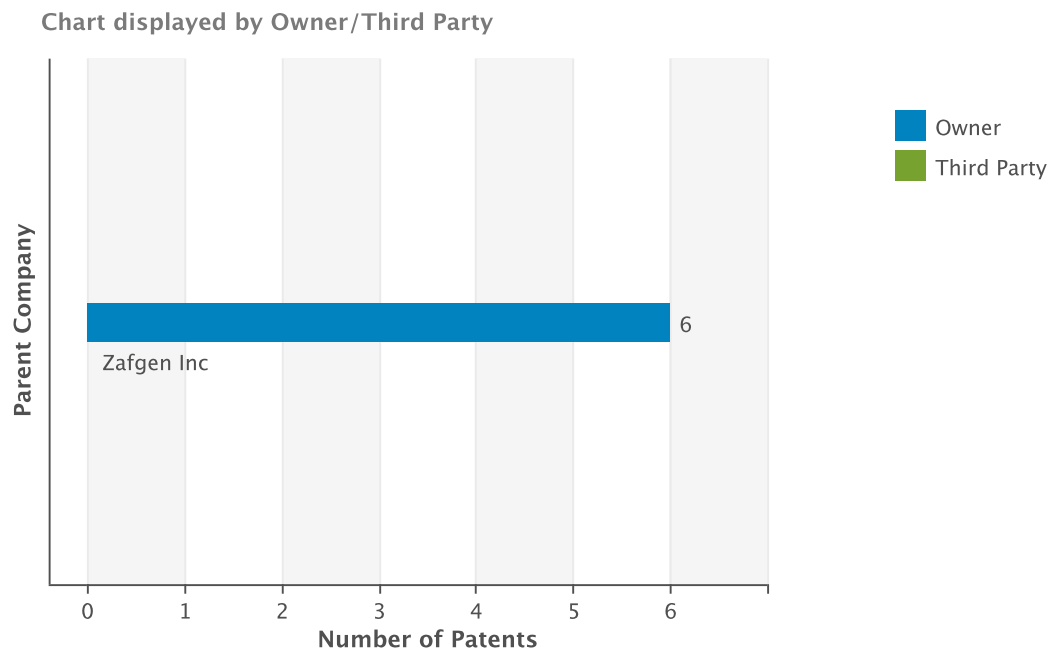
Deals by Type Table

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

[Return to Table of Contents](#)

PATENTS

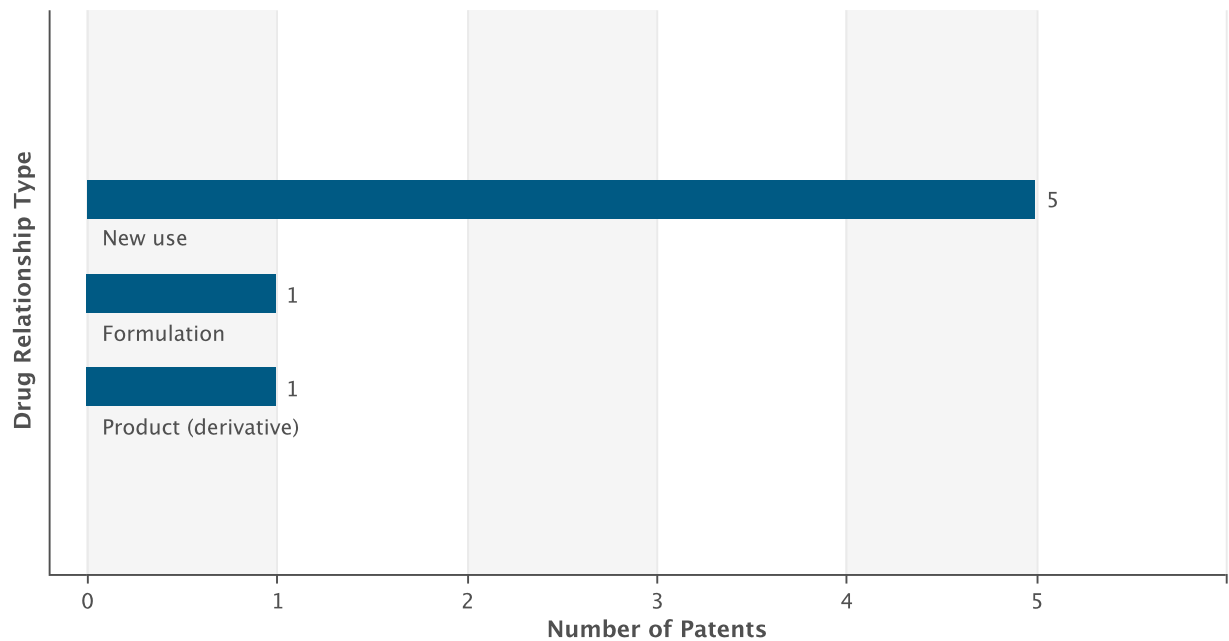
Patents by Parent Company Chart



Patents by Parent Company Table

Company Name	As Owner	As Third Party	Total
Zafgen Inc	6	0	6

Patents by Drug Relationship Type Chart



[Return to Table of Contents](#)

Patents by Drug Relationship Type Table

Drug Relationship	Total
New use	5
Product (derivative)	1
Formulation	1

[Return to Table of Contents](#)

second generation MetAP2 inhibitor (sc, obesity), Zafgen

second generation MetAP2 inhibitor (sc, obesity), Zafgen SNAPSHOT

Drug Name	second generation MetAP2 inhibitor (sc, obesity), Zafgen
Key Synonyms	
Originator Company	Zafgen Inc
Active Companies	Zafgen Inc
Inactive Companies	
Highest Status	Discovery
Active Indications	Obesity
Target-based Actions	Methionine aminopeptidase-2 inhibitor
Other Actions	
Technologies	Subcutaneous formulation;Small molecule therapeutic
Last Change Date	09-Apr-2014

second generation MetAP2 inhibitor (sc, obesity), Zafgen DEVELOPMENT PROFILE

SUMMARY

Zafgen is investigating a second generation methionine aminopeptidase 2 (MetAP2) inhibitor, for the potential sc treatment of obesity. In March 2014, the drug was listed as being in preclinical development. At that time, the company expected filing an IND in 2015.

second generation MetAP2 inhibitor (sc, obesity), Zafgen DEVELOPMENT STATUS

CURRENT DEVELOPMENT STATUS

Company	Indication	Country	Development Status	Date
Zafgen Inc	Obesity	US	Discovery	31-Mar-2014

second generation MetAP2 inhibitor (sc, obesity), Zafgen DRUG NAMES

Names	Type
second generation MetAP2 inhibitor (sc, obesity), Zafgen	

[Return to Table of Contents](#)

ZGN-839

ZGN-839 SNAPSHOT

Drug Name	ZGN-839
Key Synonyms	
Originator Company	Zafgen Inc
Active Companies	Zafgen Inc
Inactive Companies	
Highest Status	Discovery
Active Indications	Non-insulin dependent diabetes;Non alcoholic fatty liver disease;Non-alcoholic steatohepatitis;Obesity
Target-based Actions	Methionine aminopeptidase-2 inhibitor
Other Actions	Anti-inflammatory;Hypoglycemic agent
Technologies	Oral formulation;Small molecule therapeutic
Last Change Date	21-May-2014

ZGN-839 DEVELOPMENT PROFILE

SUMMARY

Zafgen is investigating ZGN-839, a methionine aminopeptidase 2 (MetAP2) inhibitor, for the potential oral treatment of type 2 diabetes, non-alcoholic steatohepatitis (NASH), nonalcoholic fatty liver disease and abdominal obesity. By April 2014, preclinical development was underway for all four indications. At that time, IND-enabling studies were planned for 2014, and an IND was to be filed in 1H15.

ZGN-839 DEVELOPMENT STATUS

CURRENT DEVELOPMENT STATUS

Company	Indication	Country	Development Status	Date
Zafgen Inc	Non alcoholic fatty liver disease	US	Discovery	18-Apr-2014
Zafgen Inc	Non-alcoholic steatohepatitis	US	Discovery	31-Mar-2014
Zafgen Inc	Non-insulin dependent diabetes	US	Discovery	31-Mar-2014
Zafgen Inc	Obesity	US	Discovery	18-Apr-2014

[Return to Table of Contents](#)



ZGN-839 DRUG NAMES

Names	Type
ZGN-839	Research Code
methionine aminopeptidase 2 inhibitor (oral, non-alcoholic steatohepatitis/type 2 diabetes mellitus), Zafgen	

[Return to Table of Contents](#)

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[Return to Table of Contents](#)

