

INFORME DE BÚSQUEDA DE PATENTES

N° de solicitud: NC2017/0008115

CRITERIOS PARA LA BÚSQUEDA (Anexar pantallazo o reporte en PDF, junto con los boléanos utilizados*. Para el caso de secuencias, anexar alineamientos)

PALABRAS CLAVE UTILIZADAS	(TI=((neprilysin) OR (neutral endopeptidase)) NEAR/10 inhibt) (AB=((neprilysin) OR (neutral endopeptidase)) NEAR/10 inhibt) (A61K) (pentan) before:priority:20150211 after:priority:19000101 ((neprilysin or "neutral endopeptidase") and inhibit)/TI/AB/IW/CLMS AND PD <= 2015-02-11
CLASIFICACIONES UTILIZADAS PARA LA BÚSQUEDA	CIP: A61K31/192; A61P13/12; A61P9/00; A61P9/12; C07C233/56; A61K45/06 CPC: A61K31/216; A61K45/06; A61K9/0019; A61K9/0075; A61K9/0078; A61K9/008; A61K9/0095; A61K9/10; A61K9/19; A61K9/2054; A61K9/2059; A61K9/4858; A61K9/4866; C07C233/56; C07C235/74; C07B2200/13

DOCUMENTOS CONSIDERADOS RELEVANTES (documentos patentes, literatura no patente, etc...)

Informes/Base de datos	N° de solicitud/ Autor**	Fecha de Publicación/Presentación (DD/MM/AAAA)	Reiv. afectadas (Con indicación, si procede, de las partes relevantes o números de secuencias)	Categorías especiales de los documentos citados***
SIPI (Obligatoria)	CO 13140628	30/08/2013	---	A
	CO 13193461	31/10/2013	---	A
	CO 14086639	09/05/2014	---	A
	CO 15016031	09/02/2015	---	A
	NC2017/0008426	10/11/2017	---	P, A
USPTO	US2013/0109639	02/05/2013	---	A
	US7879896	01/02/2011	---	A
	US8013005	06/09/2011	---	A
	US8691868	08/04/2014	---	A
Patbase*	WO2014/025891	13/02/2014	---	A
	WO2013/184934	12/12/2013	---	A
	WO2013/181332	05/12/2013	---	A
	WO2013/184898	12/12/2013	---	A
	WO2012/166389	06/12/2012	---	A
	WO2012/082853	21/06/2012	---	A
	WO2012/154249	15/11/2012	---	A
	WO2013/123222	22/08/2013	---	A
Orbit	US2006/0046978	02/03/2006	---	A
	WO2008/133896	06/11/2008	---	A
	WO2010/136493	02/12/2010	---	A
	US5552397	03/09/1996	---	A
Google Patents	WO2007/056546	18/05/2007	---	A
	WO2007/106708	20/09/2007	---	A
	US8449890	28/05/2013	---	A
	WO2012166387	06/12/2012	---	A
	WO2015/116760	06/08/2015	---	A, P
	WO2012/082857	21/06/2012	---	A
	US5496805	05/03/1996	---	A
Espacenet	WO2014/138053	12/09/2014	---	A
	WO2006/027680	16/03/2006	---	A

WO2012/112742	23/08/2012	---	A
WO2015/116786	06/08/2015	---	A, P
WO2012/166390	06/12/2012	---	A
WO2010/136474	02/12/2010	---	A

*** Categorías especiales de documentos citados:

“A” documento que define el estado general de la técnica no considerado como particularmente relevante.
“E” solicitud de patente o patente anterior pero publicada en la fecha de presentación internacional o en fecha posterior.
“P” documento publicado antes de la fecha de presentación internacional pero con posterioridad a la fecha de prioridad reivindicada.
“X” documento particularmente relevante; la invención reivindicada no puede considerarse nueva o que implique una actividad inventiva por referencia al documento aisladamente considerado.
“Y” documento particularmente relevante; la invención reivindicada no puede considerarse que implique una actividad inventiva cuando el documento se asocia a otro u otros documentos de la misma naturaleza, cuya combinación resulta evidente para un experto en la materia.

**** Indicar entre paréntesis la Autoridad que realizó la búsqueda o el informe preliminar Ejs: EPO, JP, INAPI.

Literatura no patente

**Se incluye entre otros, toda la referencia de la literatura no patente.

Fecha del reporte de búsqueda:

04/12/2018

☐		1408639	Patente PCT	DERIVADOS DE OXALAMINOS COMO INHIBIDORES DE NEPRILISINA		23 abr 2014	Concedido	SIC	THERAVANCE INC.
☐		14090226	Patente PCT	SUSTITUIDOS DE PIRIDIL-PIPERAZINIL BIFENILAMIDA COMO INHIBIDORES DEL VIRUS DE LA HEPATITIS C		28 abr 2014	Concedido	SIC	THERAVANCE, INC.
☐		15016031	Patente PCT	DERIVADOS HETEROCÍCLICOS AMINOBUTÍRICOS SUSTITUIDOS COMO INHIBIDORES DE NEPRILISINA		27 ene 2015	Concedido	DAYRON ALEXANDER RAMIREZ REYES	THERAVANCE BIOPHARMA R&D IP, LLC
☐		NC2017/0008115	Patente PCT	ÁCIDO (2S,4R)-5-(5'-CLORO-2'-FLUOROBIFENIL-4-IL)-4-(ETOXI-OXALAMINO)-2-HIDROXIMETIL-2-METILPENTANOICO		11 ago 2017	Bajo Examen de Fondo	LEONARDO FERNANDEZ RODRIGUEZ	THERAVANCE BIOPHARMA R&D IP, LLC
☐		NC2017/0008426	Patente PCT	ÁCIDO (2R,4R)-5-(5'-CLORO-2'-FLUOROBIFENIL-4-IL)-2-HIDROXI-4-[(5-METILOXAZOL-2-CARBONIL)AMINO]PENTANOICO		18 ago 2017	Bajo Examen de Fondo	JUAN NICOLAS TARQUINO CHIA	THERAVANCE BIOPHARMA R&D IP, LLC
☐		NC2017/0047267	Patente PCT	COMPUUESTOS DE NAFTIRIDINA COMO INHIBIDORES DE LA QUINASA JAK		29 nov 2017	Bajo Examen de Fondo	LYNA DEL CARMEN	THERAVANCE BIOPHARMA

fiveIPoffices - CCD

Number: WO2016/130650 Search examples: EP1612402, US2006000447A1, JP20090214944

WO2016US17315

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CCD Viewer

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Classifications & fields searched

Application WO2016US17315

Bibliographic data: WO 2016/130650 (A1)

(2s, 4r)-5-(5'-chloro-2'-fluorobiphenyl-4-yl)-2-ethoxyoxalylamino)-2-hydroxymethyl-2-methylpentanoic acid as neprilysin inhibitor

Publication date: 18 August 2016

Inventor(s): HUGHES ADAM D [US]; FENSTER ERIK [US]; FLEURY MELISSA [US]; BEAUSOLEIL ANNE-MARIE [US]; THALLADI VENKAT R [US]; NZEREM JERRY [US]; RAPTA MIROSLAV [US]

Applicant(s): THERAVANCE BIOPHARMA R&D IP LLC [US]

Classifications: International: C07C233/56; A61K31/192; A61P9/00; A61P9/12; A61P13/12; A61K45/06

Cooperative: A61K9/0019; A61K45/06; A61K9/0075; A61K9/0078; A61K9/008; A61K9/0095; A61K9/10; A61K9/19; A61K9/2054; A61K9/2059; A61K9/4858; A61K9/4866; A61K31/216; C07C233/56; C07B2200/13

Application number: WO2016US17315 20160210

Priority number(s): US201562114705P 20150211

Simple families: 1 Total family members: 12 (4)

Search page Look up compounds Tools Help History

minesoft chemical explorer

Search type: Identity Similarity Substructure

Identity search

Identity type:	Description
☒ Narrow	Returns chemical structures with same distribution of electrons, atom isotopes, stereochemistry and connected fragments (if specified).
☐ Broad	Returns chemical structures independent of distribution of electrons, atom isotopes, stereochemistry and connected fragments (if specified).
☐ Tautomer	Returns chemical structures that are tautomers of the provided chemical structure.

Return structures:

Filter by molecular weight:

Filter by molecular formula: contains

☐ Found in claims ☒ All

Country: All

Number of structures to return: 50

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#	Search query	Results	Options
1	[Chemical Explorer]: Selected structures (5)	1	View Browse Hits Optimise more...

Search 1
1 of 1
show options

PatBase

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Username: sic7@patbase.com
Subaccount: none

1) US2016228395A
(2S,4R)-5-(5'-CHLORO-2'-FLUOROBIPHENYL-4-YL)-4-(ETHOXYOXYALYLAMINO)-2-HYDROXYMETHYL-2-METHYLPENTANOIC ACID

1 of 1

1) Family number: 63115186 (US2016228395A)

Similar Translate Full-text Status Citations

Title: [EN] (2S,4R)-5-(5'-CHLORO-2'-FLUOROBIPHENYL-4-YL)-4-(ETHOXYOXYALYLAMINO)-2-HYDROXYMETHYL-2-METHYLPENTANOIC ACID

Abstract: Source: US2016228395A [EN] In one aspect, the invention relates to a compound of the structure: or a pharmaceutically acceptable salt thereof, and a crystalline form of this compound, having nephrilysin inhibitory activity. In another aspect, the invention relates to pharmaceutical compositions comprising this compound, methods of using this compound, and processes for preparing this compound.

Classifications: Classification Explorer

International (IPC) A61K A61K31/12 A61K31/22 A61K31/223 A61K45/00 A61K45/06 A61K47/12 A61K47/36 A61K47/38 A61K47/42 A61K9/00 A61K9/08 A61K9/10 A61K9/20 A61K9/48 A61P13/12 A61P9/00 A61P9/04 A61P9/12 C07C231/02 C07C231/12 C07C231/14 C07C231/24 C07C233/56 C07C235/74 C07C235/78 (Advanced/Invention); A61K45/06 A61P13/12 A61P9/04 A61P9/12 (Advanced/Non-invention); A61K (Subclass/Invention)

CPC: A61K9/0019 C07B2200/13 A61K45/06 C07C233/56 C07C235/74 A61K31/216 C07C235/78 A61K9/0075 A61K9/008 A61K9/0095 A61K9/19 A61K9/2054 A61K9/2059 A61K9/4858 A61K9/4866

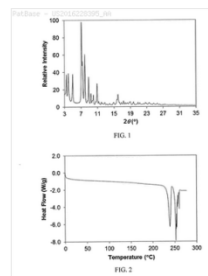
US: 1/1 424/456 560/39

Family: Family Explorer

Publication number	Publication date	Application number	Application date	Links
AU2016219362 AA	20160818	AU20160219362	20160210	View Abstract Claims Description
BR112017017317 A2	20180628	BR20171117317	20160210	View Abstract Claims Description
CA2974741 AA	20170721	CA20162974741	20160210	View Abstract Claims Description
CN107257785 A	20171017	CN201680010055	20160210	View Abstract Claims Description
CO20170008115 A2	20171031	CO20170008115	20170811	View Abstract Claims Description
EP3256446 A1	20171220	EP20160708818	20160210	View Abstract Claims Description

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☐ AU2016219362AA Title/Abstract Claims Description
☐ CA2974741AA Title/Abstract Claims Description
☐ CN107257785A Title/Abstract Non Latin text
☐ ID201804404A Non Latin text
☐ IN201717027292A Title/Abstract
☐ JP2018506535T2 Non Latin text
☐ KR20170115616A Non Latin text
☐ MX2017010429A1 Title/Abstract Claims Description
☐ TW201632498A Title/Abstract Non Latin text
☐ US2016228395AA Title/Abstract Claims Description
☐ US201708508AA Title/Abstract Claims Description



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#	Search query	Results	Options
7	6 and biphenyl	25	View Browse Hits Optimise more...
6	STAC=(nephrilysin) and PD=19000101.20150211	140	View Browse Hits Optimise more...
5	4 and pentano	6	View Browse Hits Optimise more...
4	2 and biphenyl	79	View Browse Hits Optimise more...
3	(2 w10 inhibit)	0	
2	STAC=(neutral endopeptidase) and PD=19000101.20150211	563	View Browse Hits Optimise more...
1	STAC=(nep and inhibit) and PD=19000101.20150211	70	View Browse Hits Optimise more...

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PubChem Sketcher V2.4 - Mozilla Firefox

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Easy search

34 results for ((neprilysin or "neutral endopeptidase") and inhibit)/TI/AB/TW/CI/MS AND PD <= 2015-02-11 Collection: FAHPAT

Filter options

- Legal status
 - Alive (24)
 - Dead (10)
- 1st application year
 - After 2015 (0)
 - 2011-2015 (4)
 - 2006-2010 (20)
 - 2001-2005 (5)
 - Before 2001 (5)
 - More...
- Assignment
- Litigations
- Oppositions

#	Title	Publication number	1st app. date	Applicant/Assignee	Relevance	Litigation
1	Neprilysin inhibitors	CA2879697	2013-05-07	ELEUTHERA VA...	100 %	
2	Novel compounds that inhibit dipeptidyl peptidase (dpp-iv) and neprilysin (nep) and/or angiotensin converting enzyme (ace)	US20090409878	2004-03-31	MORPHOCHEN	99 %	
3	Oxalic acid amides as neprilysin inhibitors, pharmaceutical composition thereof and preparation thereof	US20130109639	2012-10-18	SERAVI ANSU	98 %	
4	Human neprilysin protease	WO200226950	2001-05-13	MILLENNIUM PH...	97 %	
5	Dual-acting antihypertensive agents	CL200001201	2008-04-01	SERAVANSU, T...	94 %	
6	Three neprilysin-like membrane metalloproteases	EP1069100	1999-07-15	SANOFI SYNTH...	93 %	
7	Substituted aminoguanidine derivatives as neprilysin inhibitors	US2010035101	2010-05-26	NOVARTIS, SU...	93 %	
8	Human enzymes of the metalloprotease family	WO200135610	2000-11-17	ABBOTT HEALT...	82 %	
9	Dipeptidyl peptidase-iv inhibitors	WO200616157	2006-04-21	ALANTOS PHA...	72 %	
10	Screening and treatment methods using gp5 enzymes of the metalloprotease family	US20110262930	2011-05-25	ABBOTT HEALT...	71 %	
11	Methods of preventing, treating and diagnosing disorders of protein aggregation	WO2004075882	2004-02-26	ELLPSIS BIOTE...	65 %	
12	Compounds for reversing and inhibiting protein aggregation, and methods for making and using them	WO2010037135	2009-09-29	ROSLAND FRA...	65 %	
13	Gamma secretase modulators	WO2008137139	2008-05-05	MERCK SHARP ...	63 %	
14	Gamma secretase modulators	WO2008153793	2008-05-28	MERCK SHARP ...	62 %	
15	Gamma secretase modulators	WO2009073777	2008-12-04	SCHERING	62 %	
16	Gamma secretase modulators	CL2008001559	2008-05-28	SCHERING	62 %	
17	Plant extracts for treatment of angiogenesis and metastasis	WO2004019961	2003-09-02	BIOPHARMACOP...	42 %	
18	Peptides derived from human tgp protein, polynucleotides coding for said peptides and antibodies directed against said peptides	EP1577320	2004-03-19	INSTITUT PASTE...	27 %	
19	Gamma secretase modulators	WO2010056849	2009-11-12	MERCK SHARP ...	25 %	
20	Assay for disease related conformation of a protein	WO200022438	1998-10-09	UNIVERSITY OF...	19 %	
21	Fluorescence detection of proteases or peptidases	FR2807523	2000-04-07	CNRS - CENTRE	18 %	
22	Gamma secretase modulators	WO2009005729	2008-06-27	SCHERING	18 %	
23	Gamma secretase modulators	WO2009076352	2008-12-09	SCHERING	12 %	
24	Gamma secretase modulators	WO2009076337	2008-12-09	SCHERING	12 %	
25	Gamma secretase modulators	WO2009020579	2008-08-04	SCHERING	12 %	

Chemical structure: R7OC(=O)[C@H](O)[C@H](O)[C@H](NC(=O)X)[C@H](O)Cc1ccc(cc1)-c2cc(Rd)cc(Rb)cc2

List of publications

Pub. number	Pub. date	Document type
CA2879697	2014-02-13	A1 - Application laid open
US20140045906	2014-02-13	A1 - Application published
PCT WO2014025891	2014-02-13	A1 - Published application with search report
TW201410653	2014-03-16	A - Laid open application for patent or patent of addition
C07180291	2015-02-09	A2 - Application derived from a PCT application
AU2013299642	2015-02-12	A1 - Open to public inspection
A236696	2015-02-26	A - Application of patent for invention
AR92673	2015-03-18	A1 - Independent patent application

Displaying records 1 - 25 of 34

Google Patents

(TI=((neprilysin OR (neutral endopeptidase)) NEAR/10 inhibit) (AB=((neprilysin OR (neutral endopeptidase)) NEAR/10 inhibit))

1 of 19

SEARCH TERMS

- TI=((neprilysin OR (neutral endopeptidase)) NEAR/10 inhibit
- AB=((neprilysin OR (neutral endopeptidase)) NEAR/10 inhibit
- A61K
- pentan

SEARCH FIELDS

- Date - Priority - 1900-01-01 - 2015-02-11
- Inventor
- Assignee
- Patent Office - Language -
- Status - Type -

About 19 results

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Neprilysin inhibitors

Grant US8586536B2 • Roland Gendron • Theravance, Inc.

Priority 2010-12-15 • Filing 2011-12-14 • Grant 2013-11-19 • Publication 2013-11-19

In one aspect, the invention relates to compounds having the formula: where R¹, R⁶, a, b, and X are as defined in the specification, or a pharmaceutically acceptable salt thereof. These compounds have neprilysin inhibition activity. In another aspect, the invention relates to pharmaceutical ...

Neprilysin inhibitors

Grant US8449890B2 • Melissa Fleury • Theravance, Inc.

Priority 2011-02-17 • Filing 2012-02-16 • Grant 2013-05-28 • Publication 2013-05-28

In one aspect, the invention relates to compounds having the formula: where R¹, R², R³, R⁴, a, b, Z, and X are as defined in the specification, or a pharmaceutically acceptable salt thereof. These compounds have neprilysin inhibition activity. In another aspect, the invention relates to pharmaceutical ...

Neprilysin inhibitors

Grant US8481044B2 • Melissa Fleury • Theravance, Inc.

Priority 2011-02-17 • Filing 2012-02-16 • Grant 2013-07-09 • Publication 2013-07-09

In one aspect, the invention relates to compounds having the formula: where R¹, R⁶, a, b, Z, and X are as defined in the specification, or a pharmaceutically acceptable salt thereof. These compounds have neprilysin inhibition activity. In another aspect, the invention relates to pharmaceutical ...

Neprilysin inhibitors

Grant US8513244B2 • Roland Gendron • Theravance, Inc.

Priority 2010-12-15 • Filing 2012-02-16 • Grant 2013-08-20 • Publication 2013-08-20

In one aspect, the invention relates to compounds having the formula: where R¹, R², R³, R⁴, and R⁵ are as defined in the specification, or a pharmaceutically acceptable salt thereof. These compounds have neprilysin inhibition activity. In another aspect, the invention relates to pharmaceutical ...

Neprilysin inhibitors

Grant US8563512B2 • Cameron Smith • Theravance, Inc.

Priority 2010-12-15 • Filing 2011-12-14 • Grant 2013-10-22 • Publication 2013-10-22

In one aspect, the invention relates to compounds having the formula: where R¹, R², R³, X, R⁴, R⁵, and R⁶ are as defined in the specification, or a pharmaceutically acceptable salt thereof. These compounds have neprilysin inhibition activity. In another aspect, the invention relates to pharmaceutical ...

Neprilysin inhibitors

Application US20120309724A1 • Melissa Fleury • Theravance, Inc.

Priority 2011-05-31 • Filing 2012-05-18 • Publication 2012-12-06

In one aspect, the invention relates to compounds having the formula: where R¹, R², R³, X, R⁴, R⁵, and R⁶ are as defined in the specification, or a pharmaceutically acceptable salt thereof. These compounds have neprilysin inhibition activity. In another aspect, the invention relates to pharmaceutical ...

Neprilysin inhibitors

Abstract

In one aspect, the invention relates to compounds having the formula:

Chemical structure: R1-C(=O)-O-C(R2)(R3)-CH2-CH(R4)-C(=O)-NH-R5

where R¹, R⁶, a, b, and X are as defined in the specification, or a pharmaceutically acceptable salt thereof. These compounds have neprilysin inhibition activity. In another aspect, the invention relates to pharmaceutical compositions comprising such compounds; methods of using such compounds; and processes and intermediates for preparing such compounds.

Classifications

C07D498/08 Bridged systems

View 44 more classifications

US8586536B2

US Grant

Download PDF Find Prior Art Similar

Inventor: Roland Gendron, Melissa Fleury, Adam D. Hughes

Current Assignee: Theravance Biopharma R&D IP LLC

Original Assignee: Theravance Inc

Priority date: 2010-12-15

Family: US (5) EP (1) JP (2) KR (1) CN (2) CA (1) DK (1) ES (1) RU (1) WO (1)

Date App/Pub Number Status

2011-12-14 US13325425 Active

2012-06-21 US2012017383A1 Application

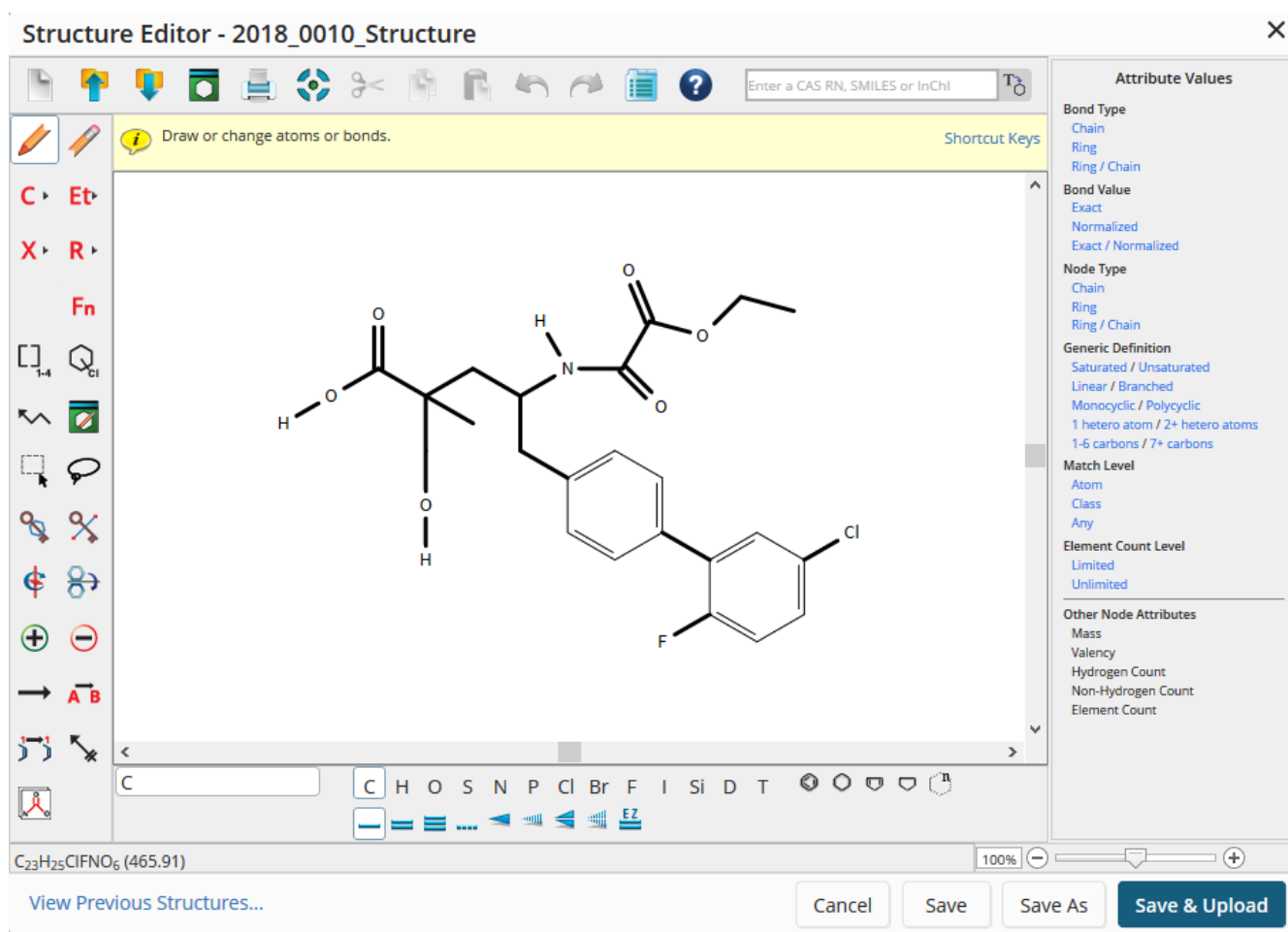
2013-11-19 US8586536B2 Grant

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2017 US15599769 Active

Info: Patent citations (51), Non-patent citations (10), Cited by (22), Legal events, Similar documents, Priority and Related Applications

External links: USPTO, USPTO Assignment, Espacenet, Global Dossier, Discuss



STNext Report

Title: NC20170008115

Date of search: 12/04/2018

Database info: CAPLUS

L8 ANSWER 1 OF 1 CAPLUS COPYRIGHT 2018 ACS on STN
[PatentPak PDF](#) | [PatentPak PDF+](#) | [PatentPak Interactive](#)

TI Preparation and pharmaceutical use of
 (2S,4R)-5-(5'-Chloro-2'-fluorobiphenyl-4-yl)-4-(ethoxyoxalylamino)-2-
 hydroxymethyl-2-methylpentanoic acid and crystalline forms thereof having
 neprilysin inhibitory activity

AN 2016:1315071 CAPLUS [Full-text](#)

DT Patent

LA English
 IN Hughes, Adam D.; Fenster, Erik; Fleury, Melissa; Beausoleil, Anne-Marie;
 Thalladi, Venkat R.; Nzerem, Jerry; Rapta, Miroslav
 PA Theravance Biopharma R&D IP, LLC, USA
 DN 165:260774
 FAN.CNT 1
 SO U.S. Pat. Appl. Publ., 44pp.
 CODEN: USXXCO

PPPI

PATENT NO.	KIND	DATE	LANGUAGE	PatentPak
US 20160228395	A1	20160811	English	PDF PDF+ Interactive
US 9433598	B2	20160906	English	PDF
WO 2016130650	A1	20160818	English	PDF
CN 107257785	A	20171017	Chinese	PDF
KR 2017115616	A	20171017	Korean	PDF
JP 2018506535	T	20180308	Japanese	PDF
US 9670143	B2	20170606	English	PDF
US 20170355665	A1	20171214	English	PDF
US 9868698	B2	20180116	English	PDF

PI

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
US 20160228395	A1	20160811	US 2016-15040481	20160210
US 9433598	B2	20160906		
CA 2974741	A1	20160818	CA 2016-2974741	20160210
WO 2016130650	A1	20160818	WO 2016-US17315	20160210
W: AE, AG, AL, AM, AO, AT, AU, AZ, BA, BB, BG, BH, BN, BR, BW, BY, BZ, CA, CH, CL, CN, CO, CR, CU, CZ, DE, DK, DM, DO, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, GT, HN, HR, HU, ID, IL, IN, IR, IS, JP, KE, KG, KN, KP, KR, KZ, LA, LC, LK, LR, LS, LU, LY, MA, MD, ME, MG, MK, MN, MW, MX, MY, MZ, NA, NG, NI, NO, NZ, OM, PA, PE, PG, PH, PL, PT, QA, RO, RS, RU, RW, SA, SC, SD, SE, SG, SK, SL, SM, ST, SV, SY, TH, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, ZA, ZM, ZW				
RW: AL, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HR, HU, IE, IS, IT, LT, LU, LV, MC, MK, MT, NL, NO, PL, PT, RO, RS, SE, SI, SK, SM, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, KM, ML, MR, NE, SN, TD, TG, BW, GH, GM, KE, LR, LS, MW, MZ, NA, RW, SD, SL, ST, SZ, TZ, UG, ZM, ZW, AM, AZ, BY, KG, KZ, RU, TJ, TM				
AU 2016219362	A1	20170817	AU 2016-219362	20160210
IL 253601	A	20170928	IL 2016-253601	20160210
CN 107257785	A	20171017	CN 2016-80010055	20160210
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