

PATENT COOPERATION TREATY

PCT

INTERNATIONAL SEARCH REPORT

(PCT Article 18 and Rules 43 and 44)

Applicant's or agent's file reference SLI-004WO	FOR FURTHER ACTION see Form PCT/ISA/220 as well as, where applicable, item 5 below.	
International application No. PCT/US2020/060180	International filing date (<i>day/month/year</i>) 12 November 2020 (12-11-2020)	(Earliest) Priority Date (<i>day/month/year</i>) 12 November 2019 (12-11-2019)
Applicant GENZYME CORPORATION		

This international search report has been prepared by this International Searching Authority and is transmitted to the applicant according to Article 18. A copy is being transmitted to the International Bureau.

This international search report consists of a total of 6 sheets.

☒ It is also accompanied by a copy of each prior art document cited in this report.

1. Basis of the report

a. With regard to the **language**, the international search was carried out on the basis of:

- ☒ the international application in the language in which it was filed
☐ a translation of the international application into _____, which is the language of a translation furnished for the purposes of international search (Rules 12.3(a) and 23.1(b))

b. ☐ This international search report has been established taking into account the **rectification of an obvious mistake** authorized by or notified to this Authority under Rule 91 (Rule 43.6**bis**(a)).

c. ☐ With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application, see Box No. I.

2. ☐ **Certain claims were found unsearchable** (See Box No. II)

3. ☐ **Unity of invention is lacking** (see Box No III)

4. With regard to the **title**,

- ☐ the text is approved as submitted by the applicant
☒ the text has been established by this Authority to read as follows:

5-MEMBERED HETEROARYLAMINOSULFONAMIDES FOR TREATING CONDITIONS MEDIATED BY DEFICIENT CFTR ACTIVITY

5. With regard to the **abstract**,

- ☒ the text is approved as submitted by the applicant
☐ the text has been established, according to Rule 38.2, by this Authority as it appears in Box No. IV. The applicant may, within one month from the date of mailing of this international search report, submit comments to this Authority

6. With regard to the **drawings**,

- a. the figure of the **drawings** to be published with the abstract is Figure No. _____
☐ as suggested by the applicant
☐ as selected by this Authority, because the applicant failed to suggest a figure
☐ as selected by this Authority, because this figure better characterizes the invention
b. ☐ none of the figures is to be published with the abstract

INTERNATIONAL SEARCH REPORT

International application No
PCT/US2020/060180

A. CLASSIFICATION OF SUBJECT MATTER
INV. C07D277/52 C07D417/04 C07D417/12 C07D417/14 A61K31/427
ADD.

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)
C07D C07F A61K

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

EPO-Internal, CHEM ABS Data, WPI Data

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	WO 2016/183173 A1 (AVISTA PHARMA SOLUTIONS [US]) 17 November 2016 (2016-11-17) examples compounds such as compounds 63 and the following; page 67 - page 72 page 85; compounds claims ----- -/-	1-90, 92, 94, 95, 98-111, 113-123, 125-130



Further documents are listed in the continuation of Box C.



See patent family annex.

* Special categories of cited documents :

"A" document defining the general state of the art which is not considered to be of particular relevance

"E" earlier application or patent but published on or after the international filing date

"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)

"O" document referring to an oral disclosure, use, exhibition or other means

"P" document published prior to the international filing date but later than the priority date claimed

"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention

"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone

"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art

"&" document member of the same patent family

Date of the actual completion of the international search

17 February 2021

Date of mailing of the international search report

24/02/2021

Name and mailing address of the ISA/

European Patent Office, P.B. 5818 Patentlaan 2
NL - 2280 HV Rijswijk
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Stix-Malaun, Elke

INTERNATIONAL SEARCH REPORT

International application No

PCT/US2020/060180

C(Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	JAMES R. HITCHIN ET AL: "Development and evaluation of selective, reversible LSD1 inhibitors derived from fragments", MEDCHEMCOMM, vol. 4, no. 11, 1 January 2013 (2013-01-01), page 1513, XP055440900, United Kingdom ISSN: 2040-2503, DOI: 10.1039/c3md00226h table 4; compound 19o -----	1-90,92, 94,95, 98-111, 113-123, 125-130
X	JENKINS JEREMY L ET AL: "A 3D similarity method for scaffold hopping from the known drugs or natural ligands to new chemotypes", JOURNAL OF MEDICINAL CHEMISTRY, AMERICAN CHEMICAL SOCIETY, vol. 47, no. 25, 2 December 2004 (2004-12-02), pages 6144-6159, XP002355651, ISSN: 0022-2623, DOI: 10.1021/JM049654Z figure 3 -----	1-90,92, 94,95, 98-111, 113-123, 125-130
X	WO 03/039451 A2 (FUJISAWA PHARMACEUTICAL CO [JP]; TSUTSUMI HIDEO [JP] ET AL.) 15 May 2003 (2003-05-15) RN 524919-97-9 CAPLUS CN Methanesulfonamide, N-[5-[1,6-dihydro-1-(1-methylethyl)-6-oxo-3-pyridazinyl]-4-phenyl-2-thiazolyl]-; page 18; compounds I-g claims -----	1-90,92, 94,95, 98-111, 113-123, 125-130
X	WO 96/16650 A1 (HISAMITSU PHARMACEUTICAL CO [JP]; HASHIGUCHI TERUSHI [JP] ET AL.) 6 June 1996 (1996-06-06) page 9 - page 18; examples; table I claims -----	1-90,92, 94,95, 98-111, 113-123, 125-130
X	US 5 449 783 A (SAITA MASARU [JP] ET AL) 12 September 1995 (1995-09-12) examples; table I claims ----- -/-	1-90,92, 94,95, 98-111, 113-123, 125-130

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International application No
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C(Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT		
Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	WO 2018/042316 A1 (NOVARTIS AG [CH]) 8 March 2018 (2018-03-08) examples claims	1-138
A	----- EP 3 464 282 A1 (ABBVIE SARL [LU]; GALAPAGOS NV [BE]) 10 April 2019 (2019-04-10) examples claims -----	1-138

INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No

PCT/US2020/060180

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
WO 2016183173	A1	17-11-2016	NONE
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EP 3464282	A1	10-04-2019	AR 108672 A1 12-09-2018 AU 2017273215 A1 25-10-2018 BR 112018074815 A2 19-03-2019 CA 3022216 A1 07-12-2017 CL 2018003323 A1 22-03-2019 CN 109311864 A 05-02-2019 CO 2018012171 A2 30-11-2018 CR 20180547 A 30-10-2019 DK 3464282 T3 27-07-2020 DO P2018000257 A 31-12-2018 EC SP18094790 A 31-01-2019 EP 3464282 A1 10-04-2019 HR P20201068 T1 13-11-2020 JP 2019517455 A 24-06-2019 KR 20190015215 A 13-02-2019 LT 3464282 T 10-09-2020 PE 20190511 A1 10-04-2019 PH 12018502534 A1 21-10-2019 PL 3464282 T3 14-12-2020 PT 3464282 T 17-07-2020

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Information on patent family members

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		RU 2018138707 A	14-07-2020
		SG 11201808842V A	29-11-2018
		SI 3464282 T1	31-12-2020
		TW 201802085 A	16-01-2018
		US 2017349576 A1	07-12-2017
		US 2019055229 A1	21-02-2019
		UY 37272 A	02-01-2018
		WO 2017208115 A1	07-12-2017
		ZA 201808423 B	28-08-2019
