

PATENT COOPERATION TREATY

PCT

INTERNATIONAL SEARCH REPORT

(PCT Article 18 and Rules 43 and 44)

Applicant's or agent's file reference 20896D009W01		FOR FURTHER ACTION see Form PCT/ISA/220 as well as, where applicable, item 5 below.
International application No. PCT/CN2024/071901	International filing date (<i>day/month/year</i>) 11 January 2024	(Earliest) Priority Date (<i>day/month/year</i>) 11 January 2023
Applicant PROFOUNDBIO US CO. et al.		

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 8 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 43.6bis(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. 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. 1

☒ 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.

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Box No. I Nucleotide and/or amino acid sequence(s) (Continuation of item 1.c of the first sheet)

1. With regard to any nucleotide and/or amino acid sequence disclosed in the international application, the international search was carried out on the basis of a sequence listing:
 - a. ☒ forming part of the international application as filed.
 - b. ☐ furnished subsequent to the international filing date for the purposes of international search (Rule 13ter.1(a)),
☐ accompanied by a statement to the effect that the sequence listing does not go beyond the disclosure in the international application as filed.
2. ☐ With regard to any nucleotide and/or amino acid sequence disclosed in the international application, this report has been established to the extent that a meaningful search could be carried out without a WIPO Standard ST.26 compliant sequence listing.
3. Additional comments:

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Box No. II Observations where certain claims were found unsearchable (Continuation of item 2 of first sheet)

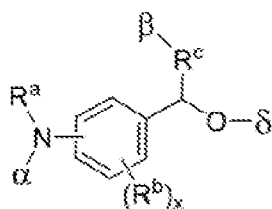
This international search report has not been established in respect of certain claims under Article 17(2)(a) for the following reasons:

1. ☒ Claims Nos.: **116**
because they relate to subject matter not required to be searched by this Authority, namely:

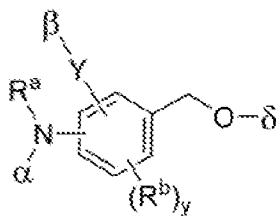
Claim 116 relates to a method of treating cancer or an autoimmune disease, and thus does not warrant an international search according to the criteria set out in PCT Rule 39.1(iv). The search report has been carried out and based on the use of the conjugate of any one of claims 102 to 114 or the pharmaceutical composition of claim 115 for the manufacturing of a medicament for the treatment of cancer or an autoimmune disease.
2. ☐ Claims Nos.:
because they relate to parts of the international application that do not comply with the prescribed requirements to such an extent that no meaningful international search can be carried out, specifically:
3. ☐ Claims Nos.:
because they are dependent claims and are not drafted in accordance with the second and third sentences of Rule 6.4(a).

Box No. IV **Text of the abstract (Continuation of item 5 of the first sheet)**

It provides linker compounds, or stereoisomers or salts thereof, including (a) a linker unit having from 1 to 4 attachment sites for a drug unit and having one of the following structures (i) or (ii):



(i)



(ii)

;

(b) at least one polar group containing a polymer unit, optionally a sugar unit, optionally a carboxyl unit, and combinations thereof; and (c) optionally a stretcher group having an attachment site for a targeting group, wherein α -is an attachment site to an enzyme-cleavable group; β -is an attachment site to the at least one polar group; δ -is H, an attachment site to at least one of the drug unit, or an attachment site to a linking group attached to the at least one of the drug unit. It also provides drug-linker compounds and conjugates formed from linker compounds, as well as related pharmaceutical compositions and methods.

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A. CLASSIFICATION OF SUBJECT MATTER

A61K47/65(2017.01)i; A61K47/60(2017.01)i; A61K47/54(2017.01)i; A61K47/56(2017.01)i; A61K47/61(2017.01)i;
C07H5/06(2006.01)i; A61P35/00(2006.01)i

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)

IPC: A61K C07H A61P

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)

CNXTX, WPABS, WPABSC, ENTXT, ENTXTC, VCN, VEN, CJFD, CNKI, ISI-WEB OF SCIENCE, PUBMED, BING, STNext: PROFOUND BIO, LIU Haidong, WANG Guobao, JIANG Xiaolong, SHANG Xiao, pabc, amidobenzylcarbamate, para-aminobenzyl alcohol, immunoconjugate, conjugate, adc, Antibody Drug Conjugate, polyether, polyamide, hydrophilic moiety, polyethylene glycol, polyalkylene glycol, sugar, oligosaccharide, polypeptide, polysarcosine, Structure search

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	WO 2020236841 A2 (NOVARTIS AG) 26 November 2020 (2020-11-26) claims 1-48, description, line 27 on page 1 to line 11 on page 2, line 32 on page 2 to line 16 on page 3, line 11 on page 4 to line 4 on page 5, line 22 on page 5 to line 14 on page 6, Embodiments 1-85 on pages 32-89, Embodiments 126-139 on pages 99-103, Embodiments 167-188 on pages 106-110, Tables 4A-4C on pages 205-254	1-4, 7-10, 12, 14-16, 18, 20, 22-42, 45-55, 57-69, 72-76, 78-100, 102-109, 111-118, 121-136
Y	WO 2020236841 A2 (NOVARTIS AG) 26 November 2020 (2020-11-26) claims 1-48, description, line 27 on page 1 to line 11 on page 2, line 32 on page 2 to line 16 on page 3, line 11 on page 4 to line 4 on page 5, line 22 on page 5 to line 14 on page 6, Embodiments 1-85 on pages 32-89, Embodiments 126-139 on pages 99-103, Embodiments 167-188 on pages 106-110, Tables 4A-4C on pages 205-254	1-136
X	WO 2022207699 A1 (MABLINK BIOSCIENCE et al.) 06 October 2022 (2022-10-06) claims 1-17, description, lines 4-7 on page 2, line 19 on page 2 to line 18 on page 4, lines 6-9 on page 22, compounds DL12-DL13 on pages 70-71, the table on pages 78-81, Figures 8-9	1-4, 7-10, 12, 14, 16, 18, 20, 22, 24, 26-27, 29-30, 38-40, 59-60, 64, 66-69, 72-76, 78-100, 102-109, 111-116



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
 “D” document cited by the applicant in the international application
 “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

28 February 2024

Date of mailing of the international search report

19 March 2024

Name and mailing address of the ISA/CN

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C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	WO 2022228493 A1 (SHANGHAI HUILIAN BIO-PHARM CO.,LTD) 03 November 2022 (2022-11-03) claims 1-93, description, paragraph [0083], compounds on pages 4-8 and 16-20	1-4, 7-10, 12, 14, 16, 18, 20, 22, 24, 26-27, 29-30, 38-40, 59-60, 64, 66-69, 72-76, 78-100, 102-109, 111-116
X	US 2019365915 A1 (BRISTOL-MYERS SQUIBB COMPANY) 05 December 2019 (2019-12-05) description, paragraphs [0013], [0015]-[0042], [0085]	1-4, 7-10, 12, 14-16, 18, 20, 22-42, 45-55, 57-69, 72-76, 78-100, 102-109, 111-118, 121-136
Y	WO 2019104289 A1 (MERSANA THERAPEUTICS, INC.) 31 May 2019 (2019-05-31) claims 1-39, description, Table 2 on page 202, Formulas (XIVj) , (XIVk), (XIVl) on page 208	1-136
Y	WO 2018098269 A2 (MERSANA THERAPEUTICS, INC.) 31 May 2018 (2018-05-31) claims 1-57	1-136
Y	WO 2019126691 A1 (MERSANA THERAPEUTICS, INC.) 27 June 2019 (2019-06-27) claims 1-112	1-136
A	US 2016339117 A1 (ABBVIE INC.) 24 November 2016 (2016-11-24) claims 1-101, description, Examples 2.145, 2.147, 2.149, 2.152, 2.155, 2.163, 2.175	1-136
A	WO 2015038426 A1 (ASANA BIOSCIENCES,LLC) 19 March 2015 (2015-03-19) claims 1-78	1-136
PX	WO 2023280227 A2 (PROFOUNDBIO US CO.) 12 January 2023 (2023-01-12) claims 1-142, description, paragraphs [05]-[08], [065], [0162]-[0166]	1-136

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Information on patent family members

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Patent document cited in search report			Publication date (day/month/year)	Patent family member(s)		Publication date (day/month/year)	
WO	2020236841	A2	26 November 2020	IL	287596	A	01 December 2021
				KR	20220010527	A	25 January 2022
				AU	2020279731	A1	06 January 2022
				CA	3140063	A1	26 November 2020
				WO	2020236841	A3	14 January 2021
				JP	2022533215	A	21 July 2022
				US	2023091510	A1	23 March 2023
				EP	3972650	A2	30 March 2022
WO	2022207699	A1	06 October 2022	AU	2022248565	A1	05 October 2023
				IL	306050	A	01 November 2023
				EP	4313157	A1	07 February 2024
				CA	3215279	A1	06 October 2022
				BR	112023019495	A2	07 November 2023
				KR	20230165288	A	05 December 2023
WO	2022228493	A1	03 November 2022	KR	20240006028	A	12 January 2024
				TW	202309045	A	01 March 2023
				CA	3173758	A1	03 November 2022
				TW	202308701	A	01 March 2023
				WO	2022228495	A1	03 November 2022
				WO	2022228494	A1	03 November 2022
				IL	308025	A	01 December 2023
				KR	20240006029	A	12 January 2024
				CA	3173902	A1	03 November 2022
				TW	202308700	A	01 March 2023
				AU	2022263700	A1	16 November 2023
				CA	3173511	A1	28 October 2023
				US	2019365915	A1	05 December 2019
WO	2019231879	A1	05 December 2019				
MX	2020012674	A	09 February 2021				
AU	2019277094	A1	21 January 2021				
IL	278938	A	31 January 2021				
JP	2021525724	A	27 September 2021				
US	10898578	B2	26 January 2021				
SG	11202011739	SA	30 December 2020				
KR	20210015923	A	10 February 2021				
US	2021113706	A1	22 April 2021				
BR	112020024022	A2	23 February 2021				
EP	3801629	A1	14 April 2021				
CA	3101601	A1	05 December 2019				
WO	2019104289	A1	31 May 2019	US	2022296725	A1	22 September 2022
				US	11638760	B2	02 May 2023
				EP	3717021	A1	07 October 2020
WO	2018098269	A2	31 May 2018	BR	112019008854	A2	09 July 2019
				WO	2018098269	A3	28 June 2018
				CA	3041559	A1	31 May 2018
				EP	3544635	A2	02 October 2019
				JP	2020510669	A	09 April 2020
				JP	7291629	B2	15 June 2023
				TW	201827082	A	01 August 2018

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Patent document cited in search report			Publication date (day/month/year)	Patent family member(s)			Publication date (day/month/year)
				US	2018154018	A1	07 June 2018
				US	11135307	B2	05 October 2021
				US	2023043447	A1	09 February 2023
				KR	20190087535	A	24 July 2019
				MX	2019005879	A	09 December 2019
				IL	266310	A	30 June 2019
				AU	2017363246	A1	16 May 2019
				JP	2023058642	A	25 April 2023
WO	2019126691	A1	27 June 2019	JP	2021506883	A	22 February 2021
				TW	201929908	A	01 August 2019
				EP	3727463	A1	28 October 2020
				US	2022305127	A1	29 September 2022
US	2016339117	A1	24 November 2016	US	2020246460	A1	06 August 2020
				SG	10201911585	XA	30 January 2020
				AU	2020210218	A1	20 August 2020
				AU	2015360613	A1	29 June 2017
				IL	252799	A0	31 August 2017
				WO	2016094509	A1	16 June 2016
				SG	11201704710	PA	28 July 2017
				RU	2020123953	A	18 September 2020
				KR	20170093943	A	16 August 2017
				RU	2017123942	A	11 January 2019
				RU	2017123942	A3	20 June 2019
				JP	2020143062	A	10 September 2020
				MX	2017007629	A	17 May 2018
				IL	268712	A	31 October 2019
				US	2019142941	A1	16 May 2019
				BR	112017012351	A2	27 February 2018
				EP	3230282	A1	18 October 2017
				JP	2018508463	A	29 March 2018
				CA	2970155	A1	16 June 2016
				IL	282594	A	30 June 2021
WO	2015038426	A1	19 March 2015	None			
WO	2023280227	A2	12 January 2023	CA	3225120	A1	12 January 2023
				TW	202320857	A	01 June 2023
				WO	2023280227	A3	16 February 2023
				AU	2022306065	A1	01 February 2024