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63/561,552	05 March 2024 (05.03.2024)	US
63/640,478	30 April 2024 (30.04.2024)	US
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(71) Applicant: ENTRADA THERAPEUTICS, INC.
[US/US]; One Design Center Place, Suite 17-500, Boston,
Massachusetts 02210 (US).

(72) Inventors: DOUGHERTY, Patrick; One Design Center
Place, Suite 17-500, Boston, Massachusetts 02210 (US).
QIAN, Ziqing; One Design Center Place, Suite 17-500,
Boston, Massachusetts 02210 (US). KHEIRABADI, Mah-
boubeh; One Design Center Place, Suite 17-500, Boston,
Massachusetts 02210 (US). STREETER, Matthew; One
Design Center Place, Suite 17-500, Boston, Massachusetts
02210 (US).

(74) Agent: PERDOK, Monique M. et al.; P.O. Box 2938, Min-
neapolis, Minnesota 55402 (US).

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kind of national protection available): AE, AG, AL, AM,
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CA, CH, CL, CN, CO, CR, CU, CV, CZ, DE, DJ, DK, DM,
DO, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, GT,
HN, HR, HU, ID, IL, IN, IQ, IR, IS, IT, JM, JO, JP, KE, KG,
KH, KN, KP, KR, KW, KZ, LA, LC, LK, LR, LS, LU, LY,
MA, MD, MG, MK, MN, MU, MW, MX, MY, MZ, NA,

(54) Title: INTRACELLULAR TARGETING OF OLIGONUCLEOTIDES

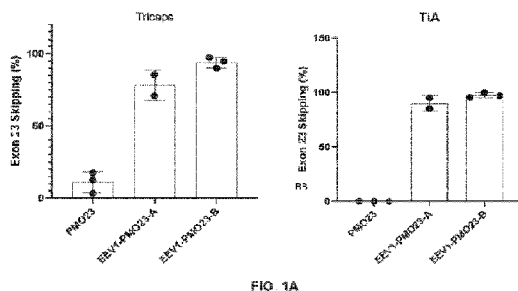


FIG. 1A

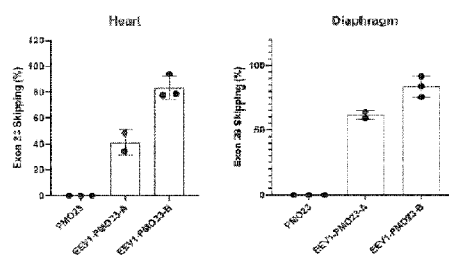


FIG. 1B

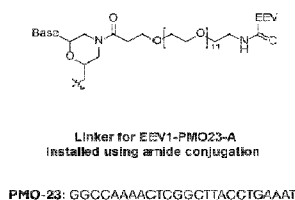


FIG. 1C

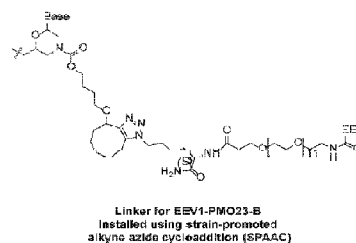


FIG. 1D

(57) Abstract: Compounds are provided include a. cyclic cell penetrating peptide (cCPP) and one or more linkers comprising, an amino acid component, a. polyethylene glycol component, a hydrophobic component, or a combination thereof. In embodiments, the compound includes an exocyclic peptide (EP). In embodiments, the compound does not include an exocyclic peptide.



NG, NI, NO, NZ, OM, PA, PE, PG, PH, PL, PT, QA, RO,
RS, RU, RW, SA, SC, SD, SE, SG, SK, SL, ST, SV, SY, TH,
TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, WS,
ZA, ZM, ZW.

- (84) Designated States** (*unless otherwise indicated, for every kind of regional protection available*): ARIPO (BW, CV, GH, GM, KE, LR, LS, MW, MZ, NA, RW, SC, SD, SL, ST, SZ, TZ, UG, ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, RU, TJ, TM), European (AL, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HR, HU, IE, IS, IT, LT, LU, LV, MC, ME, MK, MT, NL, NO, PL, PT, RO, RS, SE, SI, SK, SM, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, KM, ML, MR, NE, SN, TD, TG).

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INTERNATIONAL SEARCH REPORT

International application No

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A. CLASSIFICATION OF SUBJECT MATTER		
INV.	A61K47/64	A61K48/00
	C07K7/02	A61K47/54
	C07K7/64	A61P1/16
	C12N15/113	
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)		
A61K C07K C12N 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)		
EPO - Internal		
C. DOCUMENTS CONSIDERED TO BE RELEVANT		
Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	WO 2022/240758 A1 (ENTRADA THERAPEUTICS INC [US]) 17 November 2022 (2022-11-17) whole document, in particular [0363] seqq.; figure 11 paragraph [0392] ----- - / - -	1 - 25, 27, 29, 32 - 55, 57, 65 - 74, 83, 85, 89 - 112, 162 - 166, 168, 169, 172, 174, 276 - 285
☒ 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	"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	
"E" earlier application or patent but published on or after the international filing date	"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	
"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)	"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	
"O" document referring to an oral disclosure, use, exhibition or other means	"&" document member of the same patent family	
"P" document published prior to the international filing date but later than the priority date claimed		
Date of the actual completion of the international search	Date of mailing of the international search report	
4 February 2025	20/02/2025	
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INTERNATIONAL SEARCH REPORT

International application No

PCT/US2024/042608

C(Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT		
Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	WO 2023/081893 A1 (ENTRADA THERAPEUTICS INC [US]) 11 May 2023 (2023-05-11) whole document, in particular [399] - [416] paragraph [0340] -----	1-25,27,29, 32-55, 57, 65-74, 83,85, 89-112, 162-166, 168,169, 172,174, 276-285
X	WO 2022/240757 A1 (ENTRADA THERAPEUTICS INC [US]; DOUGHERTY PATRICK [US] ET AL.) 17 November 2022 (2022-11-17)	1,27,29, 32,33, 57, 65-74, 83,85, 89-112, 162-166, 168,169, 172,174, 276-285
A	paragraph [0378] -----	167,170, 171,173, 175-181

INTERNATIONAL SEARCH REPORT

International application No.

PCT/US2024/042608

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:

INTERNATIONAL SEARCH REPORT

International application No.
PCT/US2024/042608

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.:
because they relate to subject matter not required to be searched by this Authority, namely:
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. III Observations where unity of invention is lacking (Continuation of item 3 of first sheet)

This International Searching Authority found multiple inventions in this international application, as follows:

see additional sheet

1. ☐ As all required additional search fees were timely paid by the applicant, this international search report covers all searchable claims.
2. ☐ As all searchable claims could be searched without effort justifying an additional fees, this Authority did not invite payment of additional fees.
3. ☒ As only some of the required additional search fees were timely paid by the applicant, this international search report covers only those claims for which fees were paid, specifically claims Nos.:
**2-25, 34-55, 162-181 (completely); 1, 27, 29, 32, 33, 57, 65-74, 83, 85
89-112, 276-285 (partially)**
4. ☐ No required additional search fees were timely paid by the applicant. Consequently, this international search report is restricted to the invention first mentioned in the claims; it is covered by claims Nos.:

Remark on Protest

- ☐ The additional search fees were accompanied by the applicant's protest and, where applicable, the payment of a protest fee.
- ☐ The additional search fees were accompanied by the applicant's protest but the applicable protest fee was not paid within the time limit specified in the invitation.
- ☒ No protest accompanied the payment of additional search fees.

INTERNATIONAL SEARCH REPORT

International Application No. PCT/US2024 /042608

FURTHER INFORMATION CONTINUED FROM PCT/ISA/ 210

This International Searching Authority found multiple (groups of) inventions in this international application, as follows:

1. claims: 2-25, 34-55(completely); 1, 29, 32, 33, 65-74, 83, 89-112, 276-285(partially)

EEVs according to formula (A) as defined by claims 2-25, conjugates and methods

2. claims: 113-128(completely); 1, 26, 28, 29, 32, 33, 56, 65-84, 89-112, 276-285(partially)

EEVs according to formula (B), conjugates and methods

3. claims: 286-288(completely); 1, 26, 29, 32, 33, 56, 65-84, 89-112, 276-285(partially)

EEVs according to formula (BB), conjugates and methods

4. claims: 129-143(completely); 1, 26, 29, 32, 33, 56, 65-84, 89-112, 276-285(partially)

EEVs according to formula (C), conjugates and methods

5. claims: 144-152(completely); 1, 26, 29, 32, 33, 56, 65-84, 89-112, 276-285(partially)

EEVs according to formula (D), conjugates and methods

6. claims: 153-158(completely); 1, 26, 29, 32, 33, 56, 65-84, 89-112, 276-285(partially)

EEVs according to formula (E), conjugates and methods

7. claims: 159-161(completely); 1, 26, 29, 32, 33, 56, 65-84, 89-112, 276-285(partially)

EEVs according to formula (F), conjugates and methods

8. claims: 162-181(completely); 1, 27, 29, 32, 33, 57, 65-74, 83, 85, 89-112, 276-285(partially)

EEVs according to formula (G), conjugates and methods

9. claims: 182-191(completely); 1, 27, 29, 32, 33, 57, 65-83, 85, 89-112, 276-285(partially)

INTERNATIONAL SEARCH REPORT

International Application No. PCT/US2024 /042608

FURTHER INFORMATION CONTINUED FROM PCT/ISA/ 210

EEVs according to formula (H), conjugates and methods

10. claims: 192-200 (completely); 1, 27, 29, 32, 33, 57, 65-74, 83, 85, 89-112, 276-285 (partially)

EEVs according to formula (I), conjugates and methods

11. claims: 201-210 (completely); 1, 27, 29, 32, 33, 57, 65-74, 83, 85, 89-112, 276-285 (partially)

EEVs according to formula (J)/(JJ), conjugates and methods

12. claims: 211-219 (completely); 1, 27, 29, 32, 33, 57, 65-74, 83, 85, 89-112, 276-285 (partially)

EEVs according to formula (K), conjugates and methods

13. claims: 220-235 (completely); 1, 27, 29, 32, 33, 57, 65-74, 83, 85, 89-112, 276-285 (partially)

EEVs according to formula (L), conjugates and methods

14. claims: 236-247 (completely); 1, 27, 29, 32, 33, 57, 65-83, 85, 89-112, 276-285 (partially)

EEVs according to formula (M), conjugates and methods, 83, 84

15. claims: 58, 88, 271-275 (completely); 1, 28, 29, 32, 33, 65-74, 83, 89-112, 276-285 (partially)

EEVs according to formula (R), conjugates and methods

16. claims: 30, 31, 59-64, 86, 87, 248-270 (completely); 65-74, 89-112, 276-285 (partially)

EEVs according to formula (AA), conjugates and methods

INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No
PCT/US2024/042608

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
WO 2022240758 A1	17-11-2022	US 2024247259 A1 WO 2022240758 A1	25-07-2024 17-11-2022
WO 2023081893 A1	11-05-2023	NONE	
WO 2022240757 A1	17-11-2022	EP 4337676 A1 US 2023027739 A1 WO 2022240757 A1	20-03-2024 26-01-2023 17-11-2022