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Published:

- with international search report (Art. 21(3))
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- with sequence listing part of description (Rule 5.2(a))

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11 March 2010

(54) Title: PEPTIDYL DIACYLGLYCERIDES

(57) Abstract: Peptide and peptides that may be covalently linked to a lipid and methods of using such peptides and lipopeptides to prevent or treat disease are disclosed herein.



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INTERNATIONAL SEARCH REPORT

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A. CLASSIFICATION OF SUBJECT MATTER IPC(8) - A61K 38/00 (2009.01) USPC - 530/300 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(8): A61K 38/00 (2009.01) USPC: 530/300 Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched IPC(8): A61K 38/00; C08H 1/00 (2008.01) USPC: 530/300, 326, 345, 402 Electronic data base consulted during the international search (name of data base and, where practicable, search terms used) PubWEST(USPT,PGPB,EPAB,JPAB); GoogleScholar Search peptidyl diacylglycerides, PDAG, cancer, immune response, angiogenesis, Gln, glutamine N-acetyl alanine, dicyclohexylcarbodiimide, dimethylaminopyridine		
C. DOCUMENTS CONSIDERED TO BE RELEVANT		
Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X ----- Y	US 2003/0109437 A1 (AVERBACK et al.) 12 June 2003 (12.06.2003) SEQ ID NO: 88, 18th row, 2nd and 3rd cols, para[0018], para [0036], para[0065], para[0075], para[0092], para[0127], [0155], para[0176]	1-3 and 6 ----- 4-5, 7 and 32-35
Y	US 6,716,963 B1 (HENKIN et al.) 6 April 2004 (06.04.2004) col 1, ln 10-15, col 2, ln 25-30, col 35, ln 55-67, col 36, ln 1-67, col 123, ln 15-20	4-5
Y	US 2007/0197436 A1 (THACKER) 23 August 2007 (23.08.2007) para[0055], para[0058], para[0059]	7 and 32-35
Y	US 5,256,641 A (YATVIN et al.) 26 October 1993 (26.10.1993) col 3, ln 55-65, col 4, ln 55-60, col 10, ln 35-40	7 and 32-35
☐ Further documents are listed in the continuation of Box C. ☐		
* 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 30 December 2009 (30.12.2009)		Date of mailing of the international search report 11 JAN 2010
Name and mailing address of the ISA/US Mail Stop PCT, Attn: ISA/US, Commissioner for Patents P.O. Box 1450, Alexandria, Virginia 22313-1450 Facsimile No. 571-273-3201		Authorized officer: Lee W. Young PCT Helpdesk: 571-272-4300 PCT OSP: 571-272-7774

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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 filed or furnished:

a. (means)

☐

on paper

☒

in electronic form

b. (time)

☐

in the international application as filed

☐

together with the international application in electronic form

☒

subsequently to this Authority for the purposes of search

2. ☐ In addition, in the case that more than one version or copy of a sequence listing has been filed or furnished, the required statements that the information in the subsequent or additional copies is identical to that in the application as filed or does not go beyond the application as filed, as appropriate, were furnished.

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.:
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:
This application contains the following inventions or groups of inventions which are not so linked as to form a single general inventive concept under PCT Rule 13.1. In order for all inventions to be examined, the appropriate additional examination fees must be paid.

Groups I and II: Claims 1-7 and 32-35 are drawn to a compound comprising SEQ ID NO: 1 "XLYDKGYTSKEQKDCVGIX" (Group I) or SEQ ID NO: 2 "XLYDKGYTPKEQKDCVGIX" (Group II), and a method for synthesizing PDAG.

Groups III and IV: Claims 1 and 8-30 are drawn to a compound comprising SEQ ID NO: 1 "XLYDKGYTSKEQKDCVGIX" (Group III) or SEQ ID NO: 2 "XLYDKGYTPKEQKDCVGIX" (Group IV), a pharmaceutical composition comprising the compound, a pharmaceutical delivery system and a method of preparing the pharmaceutical composition.

-----Continued in Box IV-----

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 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.:
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.:
Claims 1-7 and 32-35, limited to SEQ ID NO: 1

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.

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-----Continued from Box III-----

Groups V and VI: Claims 1, 8, and 31 are drawn to a compound comprising SEQ ID NO: 1 "XLYDKGYTSKEQKDCVGIX" (Group V) or SEQ ID NO: 2 "XLYDKGYTPKEQKDCVGIX" (Group VI), a pharmaceutical composition comprising the compound, and a method for enhancing the immunogenicity of an antigenic peptide.

The groups listed above do not relate to a single general inventive concept under PCT Rule 13.1 because under PCT Rule 13.2, they lack the same or corresponding special technical features for the following reasons.

The distinguishing technical feature of Groups I and II is a compound with a specific structure.

The distinguishing technical feature of Groups III and IV is a pharmaceutical composition comprising specific ingredients or form.

The distinguishing technical feature of Groups V and VI is a method for enhancing the immunogenicity of an antigenic peptide by administering a pharmaceutical composition comprising the compound.

The technical feature that links Groups I-VI is a compound comprising a peptide of SEQ ID NO: 1 "XLYDKGYTSKEQKDCVGIX" (Group I) or SEQ ID NO: 2 "XLYDKGYTPKEQKDCVGIX" (Group II).

Groups III-VI are additionally linked by a pharmaceutical composition comprising the peptide.

However, neither of the above shared technical features represents an improvement over the prior art of US 2003/0109437 A1 to Averback et al. which teaches a pharmaceutical composition comprising a peptide of SEQ ID NO: 1 (SEQ ID NO: 88; claim 1, claim 23, para [0036]; [0155]).

Accordingly, unity of invention is lacking under PCT Rule 13.2 because the groups do not share a same or corresponding special technical feature providing a contribution over the prior art.