(12) INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(19) World Intellectual Property Organization
International Bureau

(43) International Publication Date
19 March 2009 (19.03.2009)

PCT

(10) International Publication Number
WO 2009/036460 A3

(51) International Patent Classification:
C07K 14/775 (2006.01)

(21) International Application Number:
PCT/US2008/076457

(22) International Filing Date:
15 September 2008 (15.09.2008)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:
60/993,963 14 September 2007 (14.09.2007) US

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(81) Designated States *(unless otherwise indicated, for every kind of national protection available)*: AE, AG, AL, AM, AO, AT, AU, AZ, BA, BB, BG, BH, BR, BW, BY, BZ, CA, CH, 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, IS, JP, KE, KG, KM, KN, KP, KR, KZ, LA, LC, LK, LR, LS, LT, LU, LY, MA, MD, ME, MG, MK, MN, MW, MX, MY, MZ, NA, NG, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RS, RU, SC, SD, SE, SG, SK, SL, SM, ST, SV, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, ZA, ZM, ZW.

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

Published:
— *with international search report*
— *before the expiration of the time limit for amending the claims and to be republished in the event of receipt of amendments*
— *with sequence listing part of description published separately in electronic form and available upon request from the International Bureau*

(88) Date of publication of the international search report:
30 April 2009

(54) Title: MODIFIED HUMAN APOLIPOPROTEIN A-I POLYPEPTIDES AND THEIR USES

(57) Abstract: Modified human apolipoprotein A-I polypeptides and uses thereof are provided.

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INTERNATIONAL SEARCH REPORT

International application No.
PCT/US 08/76457

A. CLASSIFICATION OF SUBJECT MATTER
IPC(8) - C07K 14/775 (2009.01)
USPC - 530/359
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): C07K 14/775 (2009.01)
USPC: 530/359

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)
PubWEST(USPT,PGPB,EPAB,JPAB); DialogPRO--Chemical Engineering and Biotechnology Abstracts, INSPEC, NTIS (National Technical Information Service), PASCAL, Current Contents Search, MEDLINE
Search Terms: apolipoprotein A-I, milan, paris, linker, modification, non-natural amino acid-p-acetyl phenylalanine,

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y	US 2006/0030525 A1 (Marshall, et al.) 09 February 2006 (09.02.2006), para [0024], [0027], [0073], [0088], [0106], [0141],[0143].	1-72
Y	US 2006/0194256 A1 (Miao, et al) 31 August 2006 (31.08.2006) para [0005], [0006], [0008], [0013], [0014],[0015], [0016], [0017], [0018], [0020], [0021], [0023], [0024], [0027], [0049], [0055], [0057], [0082], [0119], [0134], [0139], [0161], [0187], [0194], [0199], [0220], [0260], [0261], [0271], [0274], [0281] [0437], [0539], [0573], [0681], [0787], [0853], [0855], [0864], [0903], [0904].	1-57, 59, 60, 62-72
Y	US 2003/0082575 A1 (Schultz et al.) 01 May 2003 (01.05.2003), para [0025], [0027], [0029], [0033], [0034].	58-68
Y	US 2007/0178554 A1 (Shiva, et al.) 02 August 2007 (02.08.2007), para [0074].	19, 25 and 27

☐ 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	Date of mailing of the international search report
06 February 2009 (21.02.2009)	05 MAR 2009
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

Form PCT/ISA/210 (second sheet) (April 2007)

INTERNATIONAL SEARCH REPORT

International application No.
PCT/US 08/76457

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.

Group I: Claims 1-57 and 69-72, directed to an apolipoprotein AI polypeptide comprising one or more non-naturally occurring amino acids, restricted to SEQ ID NO: 2, or modifications of that sequence.
Group II: claims 58-68, directed to an apolipoprotein AI polypeptide comprising a selector codon, and at least one non-naturally occurring amino acid, restricted to SEQ ID NO: 1, or modifications of that sequence.

- Please see extra sheet for continuation -

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.:

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/US 08/76457

Continuation of Box III:

The inventions listed as Groups I - II 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 special technical feature of the Group I claims is an apolipoprotein AI polypeptide comprising one or more non-naturally occurring amino acids, comprising SEQ ID NO: 2, or modifications of that sequence. - not required by the claims of Group II. The special technical feature of the Group II claims is an apolipoprotein AI polypeptide comprising a selector codon, and at least one non-naturally occurring amino acid, comprising SEQ ID NO: 1, or modifications of that sequence - not required by the claims of Group I. Neither of these special technical features is common to the other group, nor do they correspond to a special technical feature in the other group.

The only common technical element shared by the above groups is that they are related to apolipoprotein AI polypeptides comprising a non-natural amino acid, or modified n-terminus. This common technical element does not represent an improvement over the prior art of US 5,506, 208 A to Eyal et al. (see Table 1, col 4, ln 55-64, col 7, ln 5-18). Therefore, the inventions of Group I and Group II lack unity of invention under PCT Rule 13 because they do not share a same or corresponding special technical feature.