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(54) Title: SYNTHETIC PROTEINS AND THERAPEUTIC USES THEREOF

(57) Abstract: The present disclosure relates to compositions and methods for treating disease, particularly, the disclosure relates to synthetic proteins and their use for treating cancer.



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INTERNATIONAL SEARCH REPORT

International application No
PCT/IB2018/000898

A. CLASSIFICATION OF SUBJECT MATTER
INV. A61K39/00
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

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, WPI Data, BIOSIS

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	WO 2013/076580 A2 (BIOVEN 3 LTD [GB]; CHARLTON KEITH ALAN [GB]; D HONDT ERIK [BE]) 30 May 2013 (2013-05-30) page 5, paragraph 0013 page 6, paragraph 0018 page 8, paragraph 0022 - paragraph 0025 page 13, paragraph 0075 page 15, paragraph 0083 - page 16, paragraph 0084 page 21, paragraph 0115 - paragraph 0116 page 25, paragraph 0136 page 26, paragraph 0141 - page 27, paragraph 0143; figures 19-21 page 28, paragraph 0149 page 31, paragraph 0161 page 32, paragraph 0165 - page 34, paragraph 0176 page 38, paragraph 0193 ----- -/-	1-33



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

9 January 2019

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INTERNATIONAL SEARCH REPORT

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.
X	WO 2014/140894 A2 (BIOVEN 3 LTD [GB]; CHARLTON KEITH ALAN [GB]; D HONDT ERIK [BE]; VERHAM) 18 September 2014 (2014-09-18) page 7, line 7 - page 8, line 5 page 9, line 7 - line 11 page 9, line 19 - page 10, line 13 page 11, line 28 - page 12, line 17 page 20, line 13 - page 21, line 7 -----	1,2,4-7, 16,17, 19-22,31
X	US 5 894 018 A (DAVILA AUGUSTIN BIENVENIDO LAG [CU] ET AL) 13 April 1999 (1999-04-13) cited in the application abstract column 2, line 46 - line 60 column 3, line 6 - column 4, line 54; examples 2-10 -----	1-4,7,8, 16-18, 22,23, 31-33
A	US 2006/246087 A1 (ARAKAWA TAKESHI [JP] ET AL) 2 November 2006 (2006-11-02) page 1, paragraph 0006 - paragraph 0010 page 1, paragraph 0014 - paragraph 0015 page 1, paragraph 0021 page 3, paragraph 0050 - paragraph 0052 page 3, paragraph 0055 page 3, paragraph 0061 - page 4, paragraph 0064 page 5, paragraph 0086; examples 1, 2 -----	1-33

INTERNATIONAL SEARCH REPORT

International application No.
PCT/IB2018/000898

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.:
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.:

1-33

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.

FURTHER INFORMATION CONTINUED FROM PCT/ISA/ 210

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

1. claims: 1-33

Synthetic protein comprising a synthetic growth factor sequence (other than Neuregulin 1beta or TGF-alpha), at least one linker and a polypeptide sequence

2. claims: 34-41(partially)

Synthetic protein comprising a synthetic Neuregulin 1beta sequence, at least one linker and a polypeptide sequence

3. claims: 34-41(partially)

Synthetic protein comprising a synthetic TGF-alpha sequence, at least one linker and a polypeptide sequence

INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No

PCT/IB2018/000898

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