



(51) International Patent Classification:

C07K 16/28 (2006.01)

TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, KM, ML, MR, NE, SN, TD, TG).

(21) International Application Number:

PCT/EP2017/068684

Published:

- with international search report (Art. 21(3))
- before the expiration of the time limit for amending the claims and to be republished in the event of receipt of amendments (Rule 48.2(h))

(22) International Filing Date:

24 July 2017 (24.07.2017)

(25) Filing Language:

English

(26) Publication Language:

English

(30) Priority Data:

16180844.9 22 July 2016 (22.07.2016) EP

(88) Date of publication of the international search report:

01 March 2018 (01.03.2018)

(71) Applicants: DEUTSCHES ZENTRUM FÜR NEURODEGENERATIVE ERKRANKUNGEN E.V. (DZNE) [DE/DE]; Sigmund-Freud-Str. 27, 53127 Bonn (DE). LUDWIG-MAXIMILIANS-UNIVERSITÄT MÜNCHEN [DE/DE]; Geschwister-Scholl-Platz 1, 80539 München (DE).

(72) Inventors: HAASS, Christian; Ichoring 15c, 82057 Icking (DE). KLEINBERGER, Gernot; Thorner Str. 21, 80993 München (DE). SCHLEPCKOW, Kai; Weißenfelderstr. 7, 80686 München (DE).

(74) Agent: MEIER, JÜRGEN, VOSSIUS & PARTNER; Siebertstraße 3, 81675 München (DE).

(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, BN, BR, BW, BY, BZ, CA, CH, CL, CN, CO, CR, CU, CZ, DE, DJ, DK, DM, DO, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, GT, HN, HR, HU, ID, IL, IN, IR, IS, JO, JP, KE, KG, KH, KN, KP, KR, KW, KZ, LA, LC, LK, LR, LS, LU, LY, MA, MD, ME, MG, MK, MN, MW, MX, MY, MZ, NA, NG, NI, NO, NZ, OM, PA, PE, PG, PH, PL, PT, QA, RO, RS, RU, RW, SA, SC, SD, SE, SG, SK, SL, SM, ST, SV, SY, TH, 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, LR, LS, MW, MZ, NA, RW, 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, MK, MT, NL, NO, PL, PT, RO, RS, SE, SI, SK, SM,

(54) Title: TREM2 CLEAVAGE MODULATORS AND USES THEREOF

(57) Abstract: The present invention relates to a binding molecule having a binding site within the ectodomain of the triggering receptor expressed on myeloid cells 2 (TREM2), wherein the binding molecule inhibits TREM2 cleavage. Said binding molecule is particularly useful for treating and/or preventing a neurological disorder, such as a neurodegenerative disorder. Also encompassed by the present invention is a pharmaceutical composition for use in treating and/or preventing a neurological disorder, wherein the pharmaceutical composition comprises the binding molecule of the present invention. Neurodegenerative disorders that may be treated and/or prevented by using the binding molecule of the present invention include Alzheimer's disease (AD), Frontotemporal lobar degeneration (FTLD), FTLD-like syndrome, Parkinson's disease, Nasu-Hakola disease, Multiple sclerosis (MS), Huntington disease, immune-mediated neuropathies, or Amyotrophic lateral sclerosis (ALS).



INTERNATIONAL SEARCH REPORT

International application No
PCT/EP2017/068684

A. CLASSIFICATION OF SUBJECT MATTER
INV. C07K16/28
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)
C07K

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, BIOSIS, EMBASE, WPI Data

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X,P	WO 2017/062672 A2 (ALECTOR LLC [US]) 13 April 2017 (2017-04-13) examples 14-16 tables 8A, 8B example 49	1-15
X	WO 2016/023019 A2 (ALECTOR LLC [US]) 11 February 2016 (2016-02-11) paragraph [0546] - paragraph [0547]	1-15
X	CN 105 218 669 A (HANLIN BIOTECHNOLOGY CO LTD) 6 January 2016 (2016-01-06) abstract	1-7,9-15
	----- -/-	



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

14 December 2017

Date of mailing of the international search report

25/01/2018

Name and mailing address of the ISA/

European Patent Office, P.B. 5818 Patentlaan 2
NL - 2280 HV Rijswijk
Tel. (+31-70) 340-2040,
Fax: (+31-70) 340-3016

Authorized officer

Malamoussi, A

INTERNATIONAL SEARCH REPORT

International application No

PCT/EP2017/068684

C(Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT		
Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	WUNDERLICH, P. ET AL.: "Sequential proteolytic processing of the triggering receptor expressed on myeloid cells-2 (TREM2) protein by ectodomain shedding and gamma-secretase-dependent intramembranous cleavage", J BIOL CHEM, vol. 288, no. 46, 2013, pages 33027-33036, XP002776697, cited in the application abstract -----	1-15

INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No

PCT/EP2017/068684

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
WO 2017062672	A2	13-04-2017	NONE
WO 2016023019	A2	11-02-2016	AU 2015300787 A1 02-02-2017
		CA 2955086 A1 11-02-2016	
		CN 107106679 A 29-08-2017	
		EP 3177322 A2 14-06-2017	
		JP 2017523814 A 24-08-2017	
		SG 11201700901S A 30-03-2017	
		US 2017240631 A1 24-08-2017	
		WO 2016023019 A2 11-02-2016	
CN 105218669	A	06-01-2016	NONE