



(43) International Publication Date
14 July 2016 (14.07.2016)

(10) International Publication Number
WO 2016/112078 A3

(51) International Patent Classification:
A61K 39/395 (2006.01)

(21) International Application Number:
PCT/US2016/012293

(22) International Filing Date:
6 January 2016 (06.01.2016)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:
62/101,031 8 January 2015 (08.01.2015) 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, BN, BR, BW, BY, BZ, CA, CH, CL, 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, IR, IS, JP, KE, KG, KN, KP, KR, 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, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, KM, ML, MR, NE, SN, TD, TG).

Declarations under Rule 4.17:

- *as to applicant's entitlement to apply for and be granted a patent (Rule 4.17(ii))*
- *as to the applicant's entitlement to claim the priority of the earlier application (Rule 4.17(iii))*

Published:

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

(88) Date of publication of the international search report:
1 September 2016

(54) Title: ANTI-PHF-TAU ANTIBODIES AND THEIR USES

(57) Abstract: The present invention relates to anti- PHF-tau antibodies and methods of making and using them. One embodiment of the invention is an isolated antibody that binds PHF-tau comprising an antigen-binding site of a heavy chain variable region (VH) of SEQ ID NOs: 20, 22 or 23. Another embodiment of the invention is an isolated antibody that binds PHF-tau comprising certain heavy and light chain complementarity determining regions or heavy chain and light chain variable regions.



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INTERNATIONAL SEARCH REPORT

International application No.

PCT/US2016/012293

A. CLASSIFICATION OF SUBJECT MATTER

IPC(8) - A61K 39/395 (2016.01)

CPC - C07K 2317/56 (2016.02)

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 39/395; C07K 16/18, 16/46; C12P 21/08 (2016.01)

CPC - C07K 14/4711, 16/18, 2317/30, 2317/56, 2317/565 (2016.02)

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

USPC - 424/139.1; 530/387.1, 387.3, 387.9; 536/23.53 (keyword delimited)

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

PatBase, Google Patents, Google Scholar, PubMed.

Search terms used: tau PHF-tau antibody VH VL

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	AUGUSTINACK et al. "Specific tau phosphorylation sites correlate with severity of neuronal cytopathology in Alzheimer's disease," Acta Neuropathol. January 2002, Vol. 103, Pgs. 26-35 entire document	1-17
A	D'ABRAMO et al. "Tau passive immunotherapy in mutant P301L mice: antibody affinity versus specificity," PLoS One. 29 April 2013 (29.04.2013), Vol. 8: e62402. Pgs. 1-10 entire document	1-17
A	WO 2013/096380 A2 (JANSSEN BIOTECH, INC) 27 June 2013 (27.06.2013) entire document	1-17
A	LICHTENBERG-KRAAG et al. "Phosphorylation-dependent epitopes of neurofilament antibodies on tau protein and relationship with Alzheimer tau," Proc Natl Acad Sci USA, 15 June 1992 (15.06.1992), Vol. 89, Pgs. 5384-8. entire document	1-17
A	US 2009/0162336 A1 (MANDELKOW et al) 25 June 2009 (25.06.2009) entire document	1-17
A	"MAPT/PHF-tau Antibody, Rabbit PAb (Cat # 10058-RP01)," SINO BIOLOGICAL INC. 08 June 2012 (08.06.2012), Pgs. 1-2. Retrieved from the Internet: <www.sinobiologicalcdn.com/upload/MSDS/10058-RP01.pdf> on 11 April 2016 (11.04.2016). entire document	1-17

☐ 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

11 April 2016

Date of mailing of the international search report

02 MAY 2016

Name and mailing address of the ISA/

Mail Stop PCT, Attn: ISA/US, Commissioner for Patents

P.O. Box 1450, Alexandria, VA 22313-1450

Facsimile No. 571-273-8300

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PCT Helpdesk: 571-272-4300

PCT OSP: 571-272-7774

INTERNATIONAL SEARCH REPORT

International application No.

PCT/US2016/012293

Box No. 1 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:
 - ☐ in the form of an Annex C/ST.25 text file.
 - ☐ on paper or in the form of an image file.
 - b. ☐ furnished together with the international application under PCT Rule 13ter.1(a) for the purposes of international search only in the form of an Annex C/ST.25 text file.
 - c. ☒ furnished subsequent to the international filing date for the purposes of international search only:
 - ☒ in the form of an Annex C/ST.25 text file (Rule 13ter.1(a)).
 - ☐ on paper or in the form of an image file (Rule 13ter.1(b) and Administrative Instructions, Section 713).
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 forming part of the application as filed or does not go beyond the application as filed, as appropriate, were furnished.

3. Additional comments:

SEQ ID NOs: 1-6 and 20-24 were searched.