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(74) **Agents:** REININGER, Irene et al.; 100 Abbott Park Road, Abbott Park, Illinois 60064 (US).

(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, LT, 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.

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(88) **Date of publication of the international search report:**
29 January 2015

(54) **Title:** ANTI-GP73 MONOCLONAL ANTIBODIES AND METHODS OF OBTAINING THE SAME

E. coli GP73 Construct

MELKKNEELKKNEFQGELEKQREQLDKIQSSHNQFLESVNKLYQDEKAVLVNNITTGE
RLIRVLQDQLKTLQRNYGRLQDDVLQFQKNQTNLERKFSYDLSQCINQMKEVKEQCEE
RIEEVTKKGNEAVASRDLSNNDRQQLQALSEPQPRLQAAGLPHTTEVPQGGKGNVLGN
SKSQTPAPSSEVVLDSEKQVEKEETNEIQVVNEEPQRDRLPQEPGREQVVEDRPVGGRG
FGGAGELGQTPQVQAALSVSQENPEMEGPERDQLVIPDQEEBQEAAGEGRNQQLRG
EDDYNMDENEAESETDKQAALAGNDRNIDVFNVEDQKRDTINLLDQREKRNHTLSG/HH
HHHH (SEQ ID NO: 98)

Bold M indicates the start codon (Methionine).

Bold and underlined letters indicate repeat of first 6 amino acids of GP73 amino acids 63-400 fragment.

Underlined letters indicate the linker.

Italicized letters indicate poly histidine tag.

FIGURE 1

(57) **Abstract:** Disclosed herein are antibodies and methods of using said antibodies to detect Golgi protein 73 (GP73) and fucosylated GP73 in a sample.

INTERNATIONAL SEARCH REPORT

International application No
PCT/US2014/028725

A. CLASSIFICATION OF SUBJECT MATTER
INV. C07K16/18 C07K16/30 G01N33/53
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 G01N

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, EMBASE

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	DATABASE WPI Week 201135 Thomson Scientific, London, GB; AN 2011-E57519 XP002728420, -& CN 101 988 926 A (GUANGZHOU BIOLOGICAL MEDICINE&HEALTH R) 23 March 2011 (2011-03-23) abstract sequences 1,2 ----- -/--	1-4,25, 32,40, 45-49, 59, 64-72, 94-97, 103



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

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INTERNATIONAL SEARCH REPORT

International application No

PCT/US2014/028725

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 2012/112798 A1 (MA XIAOJING [US]) 23 August 2012 (2012-08-23) paragraph [0079] paragraph [0145] paragraph [0158] paragraphs [0205] - [0208]; example 18 paragraph [0028] -----	1-4,25, 32,40, 45-49, 59, 64-72, 94-97, 103
X	ZHANG F ET AL: "Up-regulated Golgi phosphoprotein 2 (GOLPH2) expression in lung adenocarcinoma tissue", CLINICAL BIOCHEMISTRY, ELSEVIER INC, US, CA, vol. 43, no. 12, 1 August 2010 (2010-08-01), pages 983-991, XP027130817, ISSN: 0009-9120 [retrieved on 2010-05-24] abstract page 984, left-hand column, paragraph 2 -----	1-4,25, 32,40, 45-49, 59, 64-72, 94-97, 103
X	GU YANLI ET AL: "Quantitative analysis of elevated serum Golgi protein-73 expression in patients with liver diseases", ANNALS OF CLINICAL BIOCHEMISTRY, BRITISH MEDICAL ASSOCIATION, LONDON, GB, vol. 46, no. 1, 1 January 2009 (2009-01-01), pages 38-43, XP009179602, ISSN: 0004-5632 page 39, left-hand column, paragraph 5 -----	1-4,25, 32,40, 45-49, 59, 64-72, 94-97, 103
X	DATABASE EMBASE [Online] ELSEVIER SCIENCE PUBLISHERS, AMSTERDAM, NL; 28 February 2011 (2011-02-28), CHEN W ET AL: "Value of Golgi protein 73 monoclonal antibody in diagnosis of hepatocellular carcinoma", XP002728421, Database accession no. EMB-2011193736 abstract ----- -/--	1-4,25, 32,40, 45-49, 59, 64-75, 94-97, 103

INTERNATIONAL SEARCH REPORT

International application No

PCT/US2014/028725

C(Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT		
Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
	& CHEN W ET AL: "Value of Golgi protein 73 monoclonal antibody in diagnosis of hepatocellular carcinoma", ACTA ACADEMIAE MEDICINAE SINICAE 20110228 CHINESE ACADEMY OF MEDICAL SCIENCES CHN, vol. 33, no. 1, 28 February 2011 (2011-02-28), pages 39-44, ISSN: 1000-503X abstract -----	
X	MOROTA KAORI ET AL: "A comparative evaluation of Golgi protein-73, fucosylated hemopexin, alpha-fetoprotein, and PIVKA-II in the serum of patients with chronic hepatitis, cirrhosis, and hepatocellular carcinoma", CLINICAL CHEMISTRY AND LABORATORY MEDICINE, WALTER DE GRUYTER & CO, BERLIN, NEW YORK, vol. 49, no. 4, 1 April 2011 (2011-04-01), pages 711-718, XP009179603, ISSN: 1434-6621 page 712, right-hand column, paragraph 3 abstract -----	1-4,25, 32,40, 45-49, 59, 64-75, 94-97, 103
X	FENG LI ET AL: "Construction and development of a mammalian cell-based full-length antibody display library for targeting hepatocellular carcinoma", APPLIED MICROBIOLOGY AND BIOTECHNOLOGY, SPRINGER, BERLIN, DE, vol. 96, no. 5, 7 July 2012 (2012-07-07), pages 1233-1241, XP035135332, ISSN: 1432-0614, DOI: 10.1007/S00253-012-4243-5 abstract -----	1-4,25, 32,40, 45-49, 59, 64-72, 94-97, 103
X	AIXIA ZHANG: "Generation and characterization of an anti-GP73 monoclonal antibody for immunoblotting and sandwich ELISA", JOURNAL OF BIOMEDICAL RESEARCH, vol. 26, no. 6, 30 November 2012 (2012-11-30), pages 467-473, XP055134382, ISSN: 1674-8301, DOI: 10.7555/JBR.26.20120057 abstract page 468, right-hand column, paragraph 5 - page 469, left-hand column, paragraph 2 page 470, right-hand column, paragraph 1 - page 471, right-hand column ----- -/--	1-4,25, 32,40, 45-49, 59, 64-75, 94-97, 103

INTERNATIONAL SEARCH REPORT

International application No

PCT/US2014/028725

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 2006/121892 A2 (PHILADELPHIA HEALTH & EDUCATIO [US]; BLOCK TIMOTHY M [US]; MEHTA ANAND) 16 November 2006 (2006-11-16) paragraph [0012] paragraph [0013] paragraph [0019] paragraph [0041] -----	1-4,25, 32,40, 45-49, 59, 64-75, 94-97, 103
X	DATABASE WPI Week 200920 Thomson Scientific, London, GB; AN 2009-F88234 XP002728422, & CN 101 328 214 A (GUANGZHOU INST BIOMEDICINE&HEALTH CHIN) 24 December 2008 (2008-12-24) abstract -----	1-4,25, 32,40, 45-49, 59, 64-75, 94-97, 103
X	DATABASE WPI Week 200974 Thomson Scientific, London, GB; AN 2009-Q36196 XP002728423, & CN 101 555 282 A (CHINESE ACAD MEDICAL SCI BASIC MEDICAL I) 14 October 2009 (2009-10-14) abstract -----	1-4,25, 32,40, 45-49, 59, 64-72, 94-97, 103
X	DATABASE WPI Week 201047 Thomson Scientific, London, GB; AN 2010-J00547 XP002728424, & CN 101 735 319 A (BEIJING HOTGEN BIOTECH CO LTD) 16 June 2010 (2010-06-16) abstract -----	1-4,25, 32,40, 45-49, 59, 64-72, 94-97, 103
X	DATABASE WPI Week 200937 Thomson Scientific, London, GB; AN 2009-H74652 XP002728425, & CN 101 407 544 A (CAO B) 15 April 2009 (2009-04-15) abstract -----	1-4,25, 32,40, 45-49, 59, 64-72, 94-97, 103

INTERNATIONAL SEARCH REPORT

International application No.
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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:

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.:

1-4, 32, 40, 48, 49(completely); 25, 45-47, 59, 64-75, 94-97
103(partially)

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: 1-4, 32, 40, 48, 49(completely); 25, 45-47, 59, 64-75, 94-97, 103(partially)

anti-GP73 antibody or antibody fragment thereof capable of binding an epitope within the amino acid sequence specified by SEQ ID NO. 101 (hGP73 307-339), e.g. the antibody designated 1B-4971 (SEQ ID NO. 9-16, 57+61).

2. claims: 5-8, 33, 41, 50, 51(completely); 25, 45-47, 59, 64-75, 94-97, 103(partially)

anti-GP73 antibody or antibody fragment thereof capable of binding an epitope within the amino acid sequence specified by SEQ ID NO. 102 (hGP73 276-287), e.g. the antibody designated 1B-3246 (SEQ ID NO. 17-24, 65+69).

3. claims: 9-12, 31, 39, 52, 53(completely); 25, 45-47, 59, 64-75, 94-97, 103(partially)

anti-GP73 antibody or antibody fragment thereof capable of binding an epitope within the amino acid sequence specified by SEQ ID NO. 103 (hGP73 344-363), e.g. the antibody designated 1B-3440 (SEQ ID NO. 1-8, 49+53).

4. claims: 13-16, 35, 43, 54, 55(completely); 25, 45-47, 64-75, 94-97, 103(partially)

anti-GP73 antibody or antibody fragment thereof capable of binding an epitope within the amino acid sequence specified by SEQ ID NO. 104 (hGP73 63-96), e.g. the antibody designated 1A-3187 (SEQ ID NO. 33-40, 81+85).

5. claims: 17-20, 34, 36, 42, 44, 56, 57(completely); 25, 45-47, 59, 64-76, 92-98, 103(partially)

anti-GP73 antibody or antibody fragment thereof which immunospecifically binds to GP73, wherein the binding of the antibody or antibody fragment to GP73 is sensitive to fucosylation of GP73, e.g. antibodies designated 1B-4863 (SEQ ID NO: 25-32, 73+77) and methods related thereto except the antibody designated 1A-3187 (Invention 4).

6. claims: 21-24(completely); 45-47, 70-75, 94-97, 103(partially)

anti-GP73 antibody or antibody fragment thereof which immunospecifically binds to GP73, wherein the binding of the antibody or antibody fragment to GP73 is insensitive to

FURTHER INFORMATION CONTINUED FROM PCT/ISA/ 210

fucosylation of GP73, e.g. the antibody designated 1A-4246 (SEQ ID NO: 41-48, 89+93),
except antibodies designated 1B-4971 (Invention 1), 1B-3246 (Invention 2), 1B-3440 (Invention 3).

7. claims: 25-29, 37, 45-47, 58, 59, 70-75, 94-97, 103(all partially)

anti-GP73 antibody or antibody fragment thereof wherein the antibody comprises a variable heavy domain region comprising the amino acid sequence of SEQ ID NO: 1 or 2+3+4 or a nucleic acid encoding said amino acid sequence (SEQ ID NO. 49) and methods related thereto, except the antibodies encompassed by Inventions 1-6.

8. claims: 25-28, 30, 38, 45-47, 58, 59, 70-75, 94-97, 103(all partially)

anti-GP73 antibody or antibody fragment thereof wherein the antibody comprises a variable light domain region comprising the amino acid sequence of SEQ ID NO: 5 or 6+7+8 or a nucleic acid encoding said amino acid sequence (SEQ ID NO. 53) and methods related thereto, except the antibodies encompassed by Inventions 1-6.

9. claims: 25-29, 37, 45-47, 58, 59, 70-75, 94-97, 103(all partially)

anti-GP73 antibody or antibody fragment thereof wherein the antibody comprises a variable heavy domain region comprising the amino acid sequence of SEQ ID NO: 9 or 10+11+12 or a nucleic acid encoding said amino acid sequence (SEQ ID NO. 57) and methods related thereto, except the antibodies encompassed by Inventions 1-6.

10. claims: 25-28, 30, 38, 45-47, 58, 59, 70-75, 94-97, 103(all partially)

anti-GP73 antibody or antibody fragment thereof wherein the antibody comprises a variable light domain region comprising the amino acid sequence of SEQ ID NO: 13 or 14+15+16 or a nucleic acid encoding said amino acid sequence (SEQ ID NO. 61) and methods related thereto, except the antibodies encompassed by Inventions 1-6.

11. claims: 25-29, 37, 45-47, 58, 59, 70-75, 94-97, 103(all partially)

anti-GP73 antibody or antibody fragment thereof wherein the antibody comprises a variable heavy domain region comprising

FURTHER INFORMATION CONTINUED FROM PCT/ISA/ 210

the amino acid sequence of SEQ ID NO: 17 or 18+19+20 or a nucleic acid encoding said amino acid sequence (SEQ ID NO. 65) and methods related thereto, except the antibodies encompassed by Inventions 1-6.

12. claims: 25-28, 30, 38, 45-47, 58, 59, 70-75, 94-97, 103(all partially)

anti-GP73 antibody or antibody fragment thereof wherein the antibody comprises a variable light domain region comprising the amino acid sequence of SEQ ID NO: 21 or 22+23+24 or a nucleic acid encoding said amino acid sequence (SEQ ID NO. 69) and methods related thereto, except the antibodies encompassed by Inventions 1-6.

13. claims: 25-29, 37, 45-47, 70-76, 92-98, 103(all partially)

anti-GP73 antibody or antibody fragment thereof wherein the antibody comprises a variable heavy domain region comprising the amino acid sequence of SEQ ID NO: 25 or 26+27+28 or a nucleic acid encoding said amino acid sequence (SEQ ID NO. 73) and methods related thereto, except the antibodies encompassed by Inventions 1-6.

14. claims: 25-28, 30, 38, 45-47, 70-76, 92-98, 103(all partially)

anti-GP73 antibody or antibody fragment thereof wherein the antibody comprises a variable light domain region comprising the amino acid sequence of SEQ ID NO: 29 or 30+31+32 or a nucleic acid encoding said amino acid sequence (SEQ ID NO. 77) and methods related thereto, except the antibodies encompassed by Inventions 1-6.

15. claims: 25-29, 37, 45-47, 70-75, 94-97, 103(all partially)

anti-GP73 antibody or antibody fragment thereof wherein the antibody comprises a variable heavy domain region comprising the amino acid sequence of SEQ ID NO: 33 or 34+35+36 or a nucleic acid encoding said amino acid sequence (SEQ ID NO. 81) and methods related thereto, except the antibodies encompassed by Inventions 1-6.

16. claims: 25-28, 30, 38, 45-47, 70-75, 94-97, 103(all partially)

anti-GP73 antibody or antibody fragment thereof wherein the antibody comprises a variable light domain region comprising the amino acid sequence of SEQ ID NO: 37 or 38+39+40 or a nucleic acid encoding said amino acid sequence (SEQ ID NO. 85) and methods related thereto, except the antibodies encompassed by Inventions 1-6.

FURTHER INFORMATION CONTINUED FROM PCT/ISA/ 210

17. claims: 25-29, 37, 45-47, 58, 59, 70-76, 92-98, 103(all partially)

anti-GP73 antibody or antibody fragment thereof wherein the antibody comprises a variable heavy domain region comprising the amino acid sequence of SEQ ID NO: 41 or 42+43+44 or a nucleic acid encoding said amino acid sequence (SEQ ID NO. 89) and methods related thereto, except the antibodies encompassed by Inventions 1-6.

18. claims: 25-28, 30, 38, 45-47, 58, 59, 70-76, 92-98, 103(all partially)

anti-GP73 antibody or antibody fragment thereof wherein the antibody comprises a variable light domain region comprising the amino acid sequence of SEQ ID NO: 45 or 46+47+48 or a nucleic acid encoding said amino acid sequence (SEQ ID NO. 93) and methods related thereto, except the antibodies encompassed by Inventions 1-6.

19-46237. claims: 60, 70-75, 94-97, 103(all partially)

an anti-GP73 antibody having CDR-H1 (SEQ ID NO. 108), -H2 (SEQ ID NO. 109), -H3 (SEQ ID NO. 110), -L1 (SEQ ID NO. 111), -L2 (SEQ ID NO. 112), -L3 (SEQ ID NO. 113) comprising at 62 amino acid positions 215 different amino acids resulting in $215 \times 215 = 46225$ different molecules except the antibodies encompassed by Inventions 1-6 (see above), resulting in $46225 - 6$ different molecules, i.e. 46219 different molecules.

46238. claims: 61(completely); 70-75, 94-97, 103(partially)

an anti-GP73 antibody or antibody fragment thereof which has a KD of between about 4.0×10^{-9} to about 1.8×10^{-12} except the antibodies encompassed by Inventions 1-6.

46239. claims: 62(completely); 70-75, 94-97, 103(partially)

an anti-GP73 antibody or antibody fragment thereof which has a k off of between about 1.5×10^{-3} to about 8.0×10^{-6} except the antibodies encompassed by Inventions 1-6.

46240. claims: 63(completely); 70-75, 94-97, 103(partially)

an anti-GP73 antibody or antibody fragment thereof which has a K on between about 1.0×10^5 to about 4.1×10^6

FURTHER INFORMATION CONTINUED FROM PCT/ISA/ 210

except the antibodies encompassed by Inventions 1-6.

46241. claims: 77-91, 99-102(completely); 103(partially)

a method for determining fucosylated GP73 concentration in a test sample, using the anti-GP73 antibodies as defined in claims 77-78 and wherein the protein, antibody or antibody fragment whose binding to GP73 is sensitive to the presence or absence of a fucose sugar moiety on GP73 comprises possibilities (a)-(k) of claim 79 and wherein the protein, antibody or antibody fragment whose binding to GP73 is insensitive to the presence or absence of a fucose sugar moiety on GP73 comprises possibilities (a)-(r) of claim 80. Additionally, a kit as defined in claims 99-103.

INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No

PCT/US2014/028725

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
CN 101988926	A	23-03-2011	NONE
WO 2012112798	A1	23-08-2012	CN 103517717 A 15-01-2014 US 2014147437 A1 29-05-2014 WO 2012112798 A1 23-08-2012
WO 2006121892	A2	16-11-2006	AU 2006244398 A1 16-11-2006 CA 2607285 A1 16-11-2006 EP 1877796 A2 16-01-2008 JP 2008541060 A 20-11-2008 JP 2013156266 A 15-08-2013 US 2007037221 A1 15-02-2007 US 2009208926 A1 20-08-2009 US 2010317127 A1 16-12-2010 US 2012196277 A1 02-08-2012 WO 2006121892 A2 16-11-2006
CN 101328214	A	24-12-2008	NONE
CN 101555282	A	14-10-2009	NONE
CN 101735319	A	16-06-2010	NONE
CN 101407544	A	15-04-2009	NONE