

(19) World Intellectual Property Organization
International Bureau



(43) International Publication Date
2 October 2008 (02.10.2008)

PCT

(10) International Publication Number
WO 2008/117267 A3

- (51) International Patent Classification:
C12N 1/20 (2006.01) *A61K 35/74* (2006.01)
- (21) International Application Number:
PCT/IE2008/000034
- (22) International Filing Date: 28 March 2008 (28.03.2008)
- (25) Filing Language: English
- (26) Publication Language: English
- (30) Priority Data:
60/907,312 28 March 2007 (28.03.2007) US
- (71) Applicant (for all designated States except US): **ALIMENTARY HEALTH LIMITED** [IE/IE]; 2800 Cork Airport Business Park, Kinsale Road, Cork (IE).

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, 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).

- (72) Inventors; and
- (75) Inventors/Applicants (for US only): **MacSHARRY, John** [IE/IE]; 11 Abbotswood Mews, Monastery Road, Rochestown, Cork (IE). **O'MAHONY, Liam** [IE/IE]; 5 The Lagan, Riversdale, Rathcormac, County Cork (IE). **O'SULLIVAN, David** [IE/IE]; 114 Dun Eoin, Ballincree Road, Carrigaline, County Cork (IE). **KIELY, Barry** [IE/IE]; Simla Villa, Passage West, County Cork (IE).
- (74) Agents: **O'BRIEN, John, A.** et al.; c/o John A. O'Brien & Associates, Third Floor, Duncairn House, 14 Carysfort Avenue, Blackrock, County Dublin (IE).

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 (an) indication(s) in relation to deposited biological material furnished under Rule 13bis separately from the description
- with sequence listing part of description published separately in electronic form and available upon request from the International Bureau

- (81) Designated States (unless otherwise indicated, for every kind of national protection available): AE, AG, AL, AM,

- (88) Date of publication of the international search report:
27 November 2008

(54) Title: PROBIOTIC BIFIDOBACTERIUM STRAINS

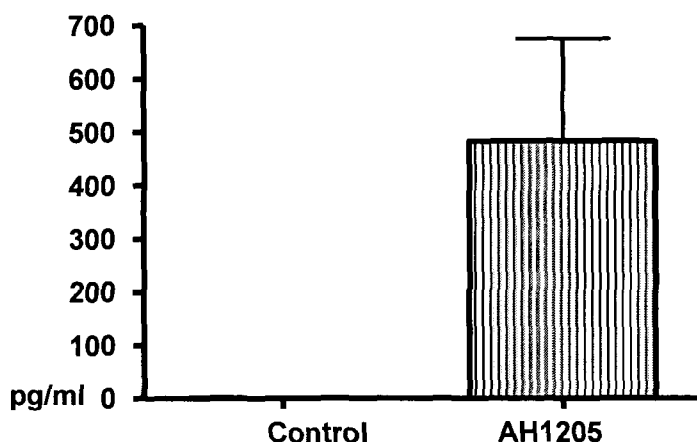


Fig. 3

(57) Abstract: Probiotic Bifidobacterium strain AH1205 or mutants or variants thereof are immunomodulatory following oral consumption and are useful in the prophylaxis and/or treatment of inflammatory activity such as undesirable gastrointestinal inflammatory activity for example inflammatory bowel disease.

INTERNATIONAL SEARCH REPORT

International application No
PCT/IE2008/000034

A. CLASSIFICATION OF SUBJECT MATTER
INV. C12N1/20 A61K35/74

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)
C12N 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 practical, search terms used)

EPO-Internal, WPI Data, BIOSIS, EMBASE, FSTA

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	WO 03/010297 A (ALIMENTARY HEALTH LTD [IE]; COLLINS JOHN KEVIN [IE]; O'SULLIVAN GERALD) 6 February 2003 (2003-02-06)	1-5, 7-39
Y	the whole document	1-39
X	EP 1 688 481 A (ENTPR IRELAND TRADING AS BIORE [IE]; UNIV COLLEGE CORK NAT UNIV IE [IE]) 9 August 2006 (2006-08-09)	1-5, 7, 8, 10-39
Y	the whole document	1-39
	----- -/--	

☒ 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 document 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.
- *G* document member of the same patent family

Date of the actual completion of the international search

25 September 2008

Date of mailing of the international search report

07/10/2008

Name and mailing address of the ISA/

European Patent Office, P.B. 5818 Patentlaan 2
NL - 2280 HV Rijswijk
Tel. (+31-70) 340-2040, Tx. 31 651 epo nl,
Fax: (+31-70) 340-3016

Authorized officer

Valcárcel, Rafael

INTERNATIONAL SEARCH REPORT

International application No

PCT/IE2008/000034

C(Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	HE FANG ET AL: "STIMULATION OF THE SECRETION OF PRO-INFLAMMATORY CYTOKINES BY BIFIDOBACTERIUM STRAINS" MICROBIOLOGY AND IMMUNOLOGY, CENTER FOR ACADEMIC PUBLICATIONS JAPAN, JP, vol. 46, no. 11, 1 January 2002 (2002-01-01), pages 781-785, XP009083768 ISSN: 0385-5600	1-5,7, 25,26, 37,39
Y	the whole document	1-39
A	EP 1 481 681 A (DE SIMONE CLAUDIO [IT]) 1 December 2004 (2004-12-01) the whole document	1-39
X	WO 2004/076615 A (BIONEER AS [DK]; PROBI AB [SE]; ISRAELSEN HANS [DK]; MADSEN SOEREN MIC) 10 September 2004 (2004-09-10)	1-5,7,8, 25,26, 34,36
Y	the whole document	1-39
X	HELWIG U ET AL: "Lactobacilli, bifidobacteria and E. coli nissle induce pro- and anti-inflammatory cytokines in peripheral blood mononuclear cells" WORLD JOURNAL OF GASTROENTEROLOGY 20061007 CN, vol. 12, no. 37, 7 October 2006 (2006-10-07), pages 5978-5986, XP009106143 ISSN: 1007-9327	1-5,7, 25,26, 34,36, 37,39
Y	the whole document	7-39
X	NAKAMURA Y ET AL: "Agent for preventing and/or treating allergies, comprises Bifidobacterium, or its processed substance chosen from e.g. culture, concentrate and paste of Bifidobacterium, as an active ingredient" 20061012, vol. 2006, no. 80, 12 October 2006 (2006-10-12), XP002478986	1-5,7,8, 25,26, 34,36
Y	the whole document	1-39
X	SHIBA T ET AL: "The suppressive effect of bifidobacteria on Bacteroides vulgatus, a putative pathogenic microbe in inflammatory bowel disease" MICROBIOLOGY AND IMMUNOLOGY 2003 JP, vol. 47, no. 6, 2003, pages 371-378, XP009106141 ISSN: 0385-5600	1-5, 25-27, 34,36
Y	the whole document	1-39

INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No

PCT/IE2008/000034

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
WO 03010297	A	06-02-2003	BR 0211442 A 09-11-2004
		CA 2454803 A1 06-02-2003	
		CN 1561387 A 05-01-2005	
		EP 1409644 A1 21-04-2004	
		JP 2005508617 T 07-04-2005	
		MX PA04000738 A 08-07-2004	
		US 2006121015 A1 08-06-2006	
		US 2003092163 A1 15-05-2003	
EP 1688481	A	09-08-2006	NONE
EP 1481681	A	01-12-2004	NONE
WO 2004076615	A	10-09-2004	NONE