(12) INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(19) World Intellectual Property Organization
International Bureau

(43) International Publication Date
20 September 2007 (20.09.2007)

PCT

(10) International Publication Number
WO 2007/106149 A3

(51) International Patent Classification:
A61K 51/00 (2006.01) *G01N 33/574* (2006.01)
A61M 36/14 (2006.01)

(21) International Application Number:
PCT/US2006/044263

(22) International Filing Date:
15 November 2006 (15.11.2006)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:
60/737,614 16 November 2005 (16.11.2005) US
60/851,191 12 October 2006 (12.10.2006) US

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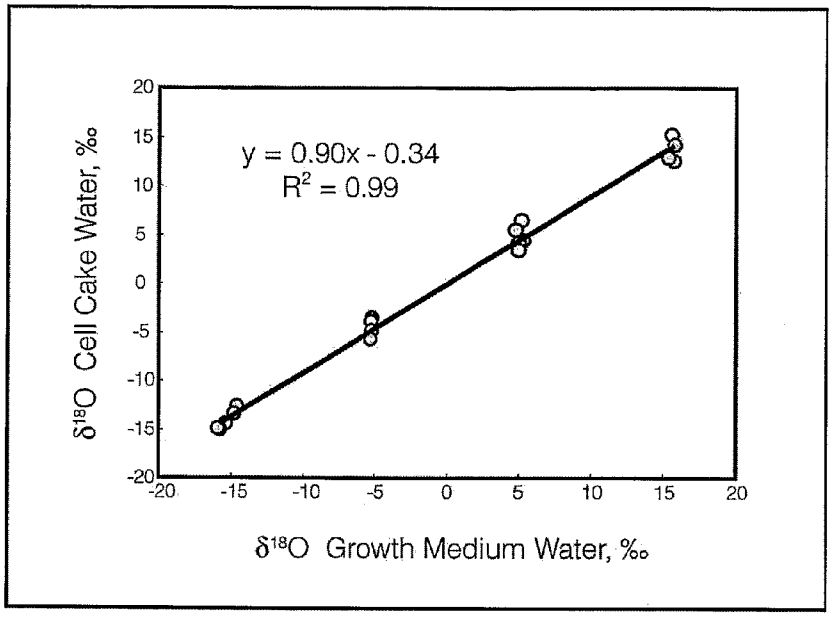
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(81) Designated States *(unless otherwise indicated, for every kind of national protection available)*: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, GT, HN, HR, HU, ID, IL, IN, IS, JP, KE, KG, KM, KN, KP, KR, KZ, LA, LC, LK, LR, LS, LT, LU, LV, LY, MA, MD, 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,

[Continued on next page]

(54) Title: INTRACELLULAR ISOTOPE DETECTION AND USES THEREOF



(57) Abstract: A method is disclosed for measuring the hydrogen and/or oxygen isotope ratio of intracellular water in *Escherichia coli* cells and correlating the hydrogen and/or oxygen isotope ratio with the metabolic activity of the cell. A method is also disclosed for measuring the hydrogen and/or oxygen ratio of intracellular water via a probe, such as a fatty acid, and correlating the hydrogen and/or oxygen ratio with the metabolic activity of the cell. Methods for measuring the hydrogen and/or oxygen isotope ratio of water from eukaryotic organisms, such as cultured rat fibroblasts and whole mammals, and optionally relating the same to a metabolic rate, are also disclosed.

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FR, GB, GR, HU, IE, IS, IT, LT, LU, LV, MC, NL, PL, PT, RO, SE, SI, SK, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

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

Published:
— *with international search report*

INTERNATIONAL SEARCH REPORT

International application No.
PCT/US 06/44263

A. CLASSIFICATION OF SUBJECT MATTER
IPC(8) - A61K 51/00; A61M 36/14; G01N 33/574 (2008.04)
USPC - 424/1.11; 435/7.230
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 51/00; A61M 36/14; G01N 33/574 (2008.04)
USPC ? 424/1.11; 435/7.230

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched
IPC(8) ? A61K 51/00; A61M 36/14; G01N 33/574 (2008.04) - see keyword below
USPC ? 424/1.11; 435/7.230; 435/4; 424/9.2; 435/968; 435/973 - see keyword below

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)
PubWEST(USPT,PGPB,EPAB,JPAB); Medline, Google
Search terms: water, intracellular, isotopic, composition, hydrogen, oxygen, metabolism, 18O, 16O, 2H, 1H, ratio, mammalian, bacteria, human, mouse, cancer, hymphomas, probe, fatty acid, methylating, blood, rare isotope, abundant isotope, prostate, antigen, weight

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X --- Y	US 20050019251 A1 (HELLERSTEIN) 27 January 2005 (27.01.2005), entire document especially Abstract, para [0009], [0011], [0013], [0014], [0022], [0023], [0024], [0035], [0036], [0065], [0066], [0067], [0068], [0069], [0073], [0074], [0075], [0083], [0084], [0089], [0092], [0102], [0104], [0105], [0114], [0118], [0125], [0135], [0145], [0207], [0216], [0218], [0221], [0257], [0272], [0273], [0274], [0278], [0279], [0293], and 2Tab le2	10-12, 14, 17, and 18 --- 1-9, 13, 15, and 16
Y	US 20050221278 A1 (IWATANI et al.) 06 October 2005 (06.10.2005), para [0001] and [0121]	2-4, and 15
Y	US 20050238577 A1 (HELLERSTEIIN) 27 October 2005 (27.10.2005), para [0059], [0120], [0179], [0183], [0185], [0235], [0238], [0239], [0310], and [0312]	13 and 16
Y	GARCIA-MARTIN ET AL. The metabolism of water in cells and tissues as detected by NMR methods. Progress in Nuclear Magnetic Resonance Spectroscopy. July 2001, Vol. 39 No. 1 Pages 41-77, especially pg 63-71	1-9

☐ Further documents are listed in the continuation of Box C. ☐

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"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	Date of mailing of the international search report
29 July 2008 (29.07.2008)	15 AUG 2008
Name and mailing address of the ISA/US Mail Stop PCT, Attn: ISA/US, Commissioner for Patents P.O. Box 1450, Alexandria, Virginia 22313-1450 Facsimile No. 571-273-3201	Authorized officer: Lee W. Young PCT Helpdesk: 571-272-4300 PCT OSP: 571-272-7774

Form PCT/ISA/210 (second sheet) (April 2007)