

(43) International Publication Date
30 June 2011 (30.06.2011)

PCT

(10) International Publication Number
WO 2011/079314 A3

(51) International Patent Classification:

C12P 5/00 (2006.01) C12N 15/90 (2006.01)
C12P 7/00 (2006.01)

(21) International Application Number:

PCT/US2010/062099

(22) International Filing Date:

23 December 2010 (23.12.2010)

(25) Filing Language:

English

(26) Publication Language:

English

(30) Priority Data:

61/289,959 23 December 2009 (23.12.2009) US

(71) Applicants (for all designated States except US):

DANISCO US INC. [US/US]; 925 Page Mill Road, Palo Alto, CA 94303-1013 (US). **THE GOOD YEAR TIRE & RUBBER COMPANY** [US/US]; 1144 East Market Street, Akron, OH 44316-0001 (US).

(72) Inventors; and

(75) Inventors/Applicants (for US only): **BECK, Zachary, Q.** [US/US]; 1087 Tanland Drive, Apt. #109, Palo Alto, CA 94303 (US). **CERVIN, Marguerite, A.** [CA/US]; 404 Palomar Drive, Redwood City, CA 94062 (US). **NIELSEN, Alex, T.** [DK/US]; 419 Lagunita Drive, Apt. #36, Stanford, CA 94305 (US). **PERES, Caroline, M.** [BE/US]; 2328 Santa Catalina Street, Palo Alto, CA 94303 (US).(74) Agents: **SHIEH-NEWTON, Terri** et al.; Morrison & Foerster LLP, 755 Page Mill Road, Palo Alto, CA 94304-1018 (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, 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, 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, PE, PG, PH, PL, PT, RO, RS, RU, 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, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, MD, 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, ML, MR, NE, SN, TD, TG).

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))

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

18 August 2011

(54) Title: COMPOSITIONS AND METHODS FOR THE INCREASED PRODUCTION OF ISOPRENE AND OTHER PRODUCTS WITH 6 - PHOSPHOGLUCONOLACTONASE (PGL)

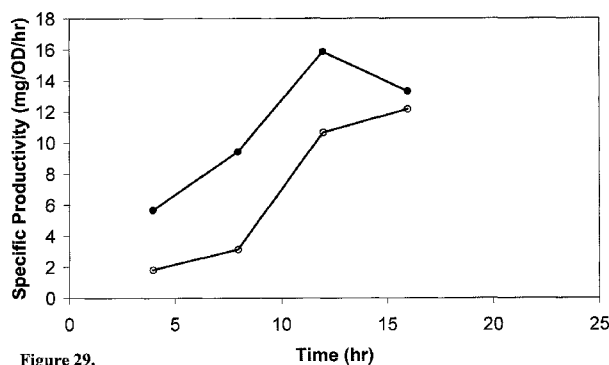
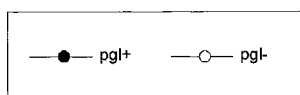


Figure 29.



(57) Abstract: Provided herein are improved compositions and methods for the increased production of isoprene. Also provided herein are improved compositions and methods for the increased production of heterologous polypeptides capable of biological activity.

INTERNATIONAL SEARCH REPORT

International application No
PCT/US2010/062099

A. CLASSIFICATION OF SUBJECT MATTER
INV. C12P5/00 C12P7/00 C12N15/90
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)
C12N C12P

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, 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.
Y, P	WO 2010/078457 A2 (DANISCO US INC [US]; GOODYEAR TIRE & RUBBER [US]; CHOTANI GOPAL K [US]) 8 July 2010 (2010-07-08) whole document esp. paragraphs [5,6,92,904]	1-26
E	WO 2010/148144 A1 (DANISCO US INC [US]; GOODYEAR TIRE & RUBBER [US]; MCAULIFFE JOSEPH C []) 23 December 2010 (2010-12-23) whole document esp. paragraph 261	1-26
Y	WO 2009/076676 A2 (GENENCOR INT [US]; GOODYEAR TIRE & RUBBER [US]; CERVIN MARGUERITE [US]) 18 June 2009 (2009-06-18) cited in the application whole document esp. paragraphs [134 and 424]	1-26
	----- -/--	



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.

"&" document member of the same patent family

Date of the actual completion of the international search

25 May 2011

Date of mailing of the international search report

15/06/2011

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

Brück, Marianne

INTERNATIONAL SEARCH REPORT

International application No
PCT/US2010/062099

C(Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	WO 2005/080583 A2 (AJINOMOTO KK [JP]; ZIMENKOV DANILA VADIMOVICH [RU]; GULEVICH ANDREY YU) 1 September 2005 (2005-09-01) whole document esp. page 2 -----	1-26
A	EP 1 510 583 A1 (KYOWA HAKKO KOGYO KK [JP]) 2 March 2005 (2005-03-02) the whole document -----	15-18, 24,25
A	WO 2004/003175 A2 (ARKION LIFE SCIENCES LLC [US]; DENG MING-DE [US]; ANGERER J DAVID [US]) 8 January 2004 (2004-01-08) the whole document -----	4,5,7,19
A	KUTSCHE MICHAEL ET AL: "Promoters controlling expression of the alternative nitrogenase and the molybdenum uptake system in Rhodobacter capsulatus are activated by NtrC, independent of sigma-54, and repressed by molybdenum", JOURNAL OF BACTERIOLOGY, AMERICAN SOCIETY FOR MICROBIOLOGY, WASHINGTON, DC; US, vol. 178, no. 7, 1 April 1996 (1996-04-01), pages 2010-2017, XP009148719, ISSN: 0021-9193 the whole document -----	2,3,7

INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No

PCT/US2010/062099

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
WO 2010078457 A2	08-07-2010	US 2010196977 A1	05-08-2010
WO 2010148144 A1	23-12-2010	US 2011040058 A1	17-02-2011
WO 2009076676 A2	18-06-2009	AU 2008334945 A1	18-06-2009
		CA 2709107 A1	18-06-2009
		CN 102027124 A	20-04-2011
		EP 2235190 A2	06-10-2010
		JP 2011505841 T	03-03-2011
		KR 20100118973 A	08-11-2010
		US 2009203102 A1	13-08-2009
WO 2005080583 A2	01-09-2005	BR PI0507978 A	24-07-2007
		EP 1718731 A2	08-11-2006
		JP 4670811 B2	13-04-2011
		JP 2007523625 T	23-08-2007
		KR 20070006799 A	11-01-2007
EP 1510583 A1	02-03-2005	AU 2003234790 A1	11-11-2003
		WO 03095651 A1	20-11-2003
		US 2005287655 A1	29-12-2005
WO 2004003175 A2	08-01-2004	AU 2003280305 A1	19-01-2004
		CA 2488853 A1	08-01-2004
		CN 101365785 A	11-02-2009
		EP 1576106 A2	21-09-2005
		JP 2006508643 T	16-03-2006
		JP 2010259449 A	18-11-2010
		KR 20050053534 A	08-06-2005
		MX PA04012978 A	12-09-2005
		ZA 200410246 A	28-06-2006