

(19) World Intellectual Property Organization  
International Bureau



(43) International Publication Date  
17 August 2006 (17.08.2006)

PCT

(10) International Publication Number  
**WO 2006/084706 A3**

(51) International Patent Classification:  
*C12N 9/00* (2006.01)      *C12P 17/04* (2006.01)

(21) International Application Number:  
PCT/EP2006/001198

(22) International Filing Date:  
10 February 2006 (10.02.2006)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:  
05405073.7      11 February 2005 (11.02.2005)      EP  
05405066.1      11 February 2005 (11.02.2005)      EP

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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, HR, HU, ID, IL, IN, IS, JP, KE, KG, KM, KN, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, LY, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NG, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SM, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, 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, 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).

Published:  
— with international search report

(88) Date of publication of the international search report:  
14 December 2006

For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.

(54) Title: GENE STS 07

(57) Abstract: The present invention relates to newly identified genes that encode proteins that are involved in the synthesis of L-ascorbic acid (hereinafter also referred to as Vitamin C). The invention also features polynucleotides comprising the full-length polynucleotide sequences of the novel genes and fragments thereof, the novel polypeptides encoded by the polynucleotides and fragments thereof, as well as their functional equivalents. The present invention also relates to the use of said polynucleotides and polypeptides as biotechnological tools in the production of Vitamin C from microorganisms, whereby a modification of said polynucleotides and/or encoded polypeptides has a direct or indirect impact on yield, production, and/or efficiency of production of the fermentation product in said microorganism. Also included are methods/processes of using the polynucleotides and modified polynucleotide sequences to transform host microorganisms. The invention also relates to genetically engineered microorganisms and their use for the direct production of Vitamin C.

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**INTERNATIONAL SEARCH REPORT**

International application No  
PCT/EP2006/001198

**A. CLASSIFICATION OF SUBJECT MATTER**  
INV. C12N9/00 C12P17/04

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

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, Sequence Search, EMBASE, BIOSIS, PAJ, WPI Data

**C. DOCUMENTS CONSIDERED TO BE RELEVANT**

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	DATABASE EMBL [Online] 24 January 2005 (2005-01-24), "Gluconobacter oxydans 621H, complete genome." XP002398132 retrieved from EBI accession no. EM_PRO:CP000009 Database accession no. CP000009 the whole document	1-8, 10-19
X	-& PRUST C ET AL: "Complete genome sequence of the acetic acid bacterium Gluconobacter oxydans" NATURE BIOTECHNOLOGY, NATURE PUBLISHING GROUP, NEW YORK, NY, US, vol. 23, no. 2, February 2005 (2005-02), pages 195-200, XP002334906 ISSN: 1087-0156 the whole document	1

Further documents are listed in the continuation of Box C.

See patent family annex.

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Date of the actual completion of the international search

8 September 2006

Date of mailing of the international search report

25/09/2006

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## INTERNATIONAL SEARCH REPORT

International application No

PCT/EP2006/001198

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 2004/029268 A (DSM IP ASSETS B.V; HOSHINO, TATSUO; SUGISAWA, TERUHIDE) 8 April 2004 (2004-04-08) the whole document -----	4,6,13, 19

# INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No

PCT/EP2006/001198

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
WO 2004029268 A	08-04-2004	AU 2003270234 A1	19-04-2004
		CN 1685049 A	19-10-2005
		JP 2006500050 T	05-01-2006
		US 2006035349 A1	16-02-2006

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