

(19) World Intellectual Property Organization
International Bureau



(43) International Publication Date
21 March 2002 (21.03.2002)

PCT

(10) International Publication Number
WO 02/022857 A3

(51) International Patent Classification⁷: C12Q 1/00

(21) International Application Number: PCT/US01/28761

(22) International Filing Date:
14 September 2001 (14.09.2001)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:
09/659,310 12 September 2000 (12.09.2000) US

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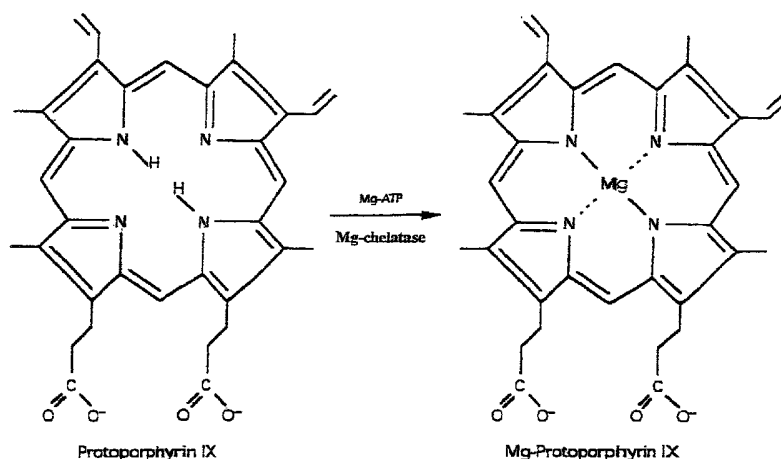
Parkway, Durham, NC 27713 (US). GORLACH, Jorn [DE/US]; 3907 King Charles Road, Durham, NC 27707 (US). BOYES, Douglas [US/US]; 361 Vickers Road, Chapel Hill, NC 27514 (US). DAVIS, Keith [US/US]; 4119 Cobblestone Place, Durham, NC 27707 (US). HAMILTON, Carol [US/US]; 2006 Weehawken Place, Apex, NC 27502 (US). HOFFMAN, Neil [US/US]; 115 Silo Drive, Chapel Hill, NC 27514 (US). KLOTI, Andreas [CH/CH]; Buechlenweg 12, CH-8805 Richterswil (CH). ASCENZI, Robert [US/US]; 741 Landing Lane, Cary, NC 27511 (US).

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(81) Designated States (national): AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CR, CU, CZ, DE, DK, DM, DZ, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, TZ, UA, UG, US, UZ, VN, YU, ZA, ZW.

[Continued on next page]

(54) Title: METHODS FOR THE IDENTIFICATION OF MODULATORS OF MAGNESIUM CHELATASE EXPRESSION OR ACTIVITY IN PLANTS



(57) Abstract: The present inventors have discovered that Mg-chelatase is essential for the growth of *Arabidopsis*. Specifically, the inhibition of Mg-chelatase CHL_H gene expression in *Arabidopsis* seedlings results in varying levels of chlorosis (yellowing), significantly reduced growth and developmental abnormalities. Thus, *Arabidopsis* Mg-chelatase can be used as a target for the identification of herbicides. Accordingly, the present invention provides methods for the identification of compounds that modulate *Arabidopsis* Mg-chelatase expression or activity, comprising: contacting a compound with a *Arabidopsis* Mg-chelatase, or a subunit thereof, and detecting the presence and/or absence of binding between said compound and said Mg-chelatase, or detecting a change in Mg-chelatase expression or activity. The methods of the invention are useful for the identification of herbicides and other compounds that can modulate plant growth and development. In addition, the methods of the invention are useful for the identification of compounds that stimulate the expression or function of Mg-chelatase expression or function. Such compounds can be used to promote or manipulate plant growth and development.



WO 02/022857 A3



(84) Designated States (regional): ARIPO patent (GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, TR), OAPI patent (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:
19 June 2003

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.

Published:

— *with international search report*

INTERNATIONAL SEARCH REPORT

International Application No

PCT/US 01/28761

A. CLASSIFICATION OF SUBJECT MATTER
IPC 7 G01N33/68 C12Q1/25

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 7 G01N C12Q

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

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category °	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	DE 197 17 656 A (HOECHST SCHERING AGREVO GMBH) 29 October 1998 (1998-10-29) cited in the application page 2, line 42-44 page 7, line 1-5 page 8, line 54-57 page 9, line 16-19 --- -/--	1-19

Further documents are listed in the continuation of box C.

Patent family members are listed in annex.

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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

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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.

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Date of the actual completion of the international search

14 January 2003

Date of mailing of the international search report

22/01/2003

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INTERNATIONAL SEARCH REPORT

International Application No

PCT/US 01/28761

C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT		
Category °	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	<p>WUEBERT JOACHIM ET AL: "Hydroxybenzoic acid methylesters inhibit magnesium chelatase activity in cress and barley seedlings." PLANT PHYSIOLOGY AND BIOCHEMISTRY (PARIS), vol. 35, no. 8, 1997, pages 581-587, XP008012210 ISSN: 0981-9428 abstract page 583, column 2, paragraph 2 -page 585, column 1, paragraph 1</p>	1-19
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P,X	<p>WO 00 75340 A (GUTTERIDGE STEVEN ;DU PONT (US); MAXWELL CARL A (US); BUTLER KARLE) 14 December 2000 (2000-12-14) page 1, line 25-29 page 22, line 7-13 example 9 claims 24,25</p>	1-19

INTERNATIONAL SEARCH REPORT

Information on patent family members

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