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

(19) World Intellectual Property Organization
International Bureau

(43) International Publication Date
10 February 2005 (10.02.2005)

PCT

(10) International Publication Number
WO 2005/012515 A2

(51) International Patent Classification[7]: C12N 9/10

(21) International Application Number: PCT/US2004/013145

(22) International Filing Date: 29 April 2004 (29.04.2004)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:

863-2003	29 April 2003 (29.04.2003)	US
10/427,692	30 April 2003 (30.04.2003)	US

(71) Applicants *(for all designated States except US)*: **PIONEER HI-BRED INTERNATIONAL, INC.** [US/US]; 800 Capital Square, 400 Locust Street, Des Moines, IA 50309 (US). **VERDIA, INC.** [US/US]; 515 Galveston Drive, Redwood City, CA 94063 (US).

(72) Inventors; and

(75) Inventors/Applicants *(for US only)*: **CASTLE, Linda, A.** [US/US]; 784 Hans Avenue, Mountain View, CA 94040 (US). **SIEHL, Dan** [US/US]; 310 Durham Street, Menlo Park, CA 94025 (US). **GIVER, Lorraine, J.** [US/US]; 101 W. Ferndale Drive, Sunnyvale, CA 94085 (US). **MINSHULL, Jeremy** [GB/US]; 679 Los Ninos Way, Los Altos, CA 94022 (US). **IVY, Christina** [US/US]; 798 Fieldstone Lane, Encinitas, CA 92024 (US). **CHEN, Yong, Hong** [US/US]; 828 Vegas Circle, Foster City, CA 94404 (US). **PATTEN, Phillip, A.** [US/US]; 261 La Cuesta Drive, Menlo Park, CA 94028 (US). **GORTON, Rebecca** [US/US]; 788 Harrison Street, Apt. 819, San Francisco, CA 94107 (US). **DUCK, Nicholas, B.** [US/US]; 1227 Tartarian Trail, Apex, NC 27502 (US). **McCUTCHEN, Billy, Fred** [US/US]; 13420 Cedarwood Avenue, Clive, IA 50325 (US). **KEMBLE, Roger** [US/US]; 2100 Wisley Way, Wake Forest, NC 27587 (US).

(74) Agents: **THORNE, Leigh, W.** et al.; Alston & Bird LLP, Bank of America Plaza, 101 South Tryon Street, Suite 4000, Charlotte, NC 28280-4000 (US).

(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, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW.

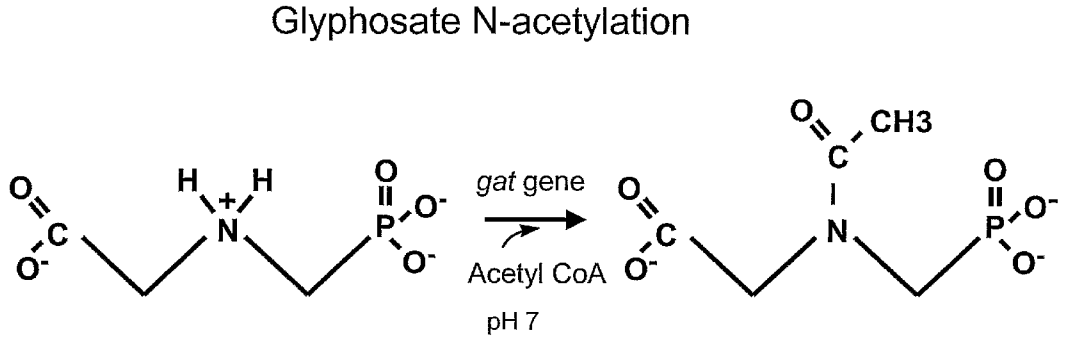
(84) Designated States *(unless otherwise indicated, for every kind of regional protection available)*: ARIPO (BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, 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:

— *without international search report and to be republished upon receipt of that report*

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: NOVEL GLYPHOSATE-N-ACETYLTRANSFERASE (GAT) GENES



(57) Abstract: Novel proteins are provided herein, including proteins capable of catalyzing the acetylation of glyphosate and other structurally related proteins. Also provided are novel polynucleotides capable of encoding these proteins, compositions that include one or more of these novel proteins and/or polynucleotides, recombinant cells and transgenic plants comprising these novel compounds, diversification methods involving the novel compounds, and methods of using the compounds. Some of the novel methods and compounds provided herein can be used to render an organism, such as a plant, resistant to glyphosate.

WO 2005/012515 A2