

(19) World Intellectual Property
Organization
International Bureau



(43) International Publication Date
29 January 2004 (29.01.2004)

PCT

(10) International Publication Number
WO 2004/009112 A1

(51) International Patent Classification⁷: **A61K 38/50**,
47/48, A61P 35/00

(21) International Application Number:
PCT/CA2003/001061

(22) International Filing Date: 16 July 2003 (16.07.2003)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:
60/397,244 18 July 2002 (18.07.2002) US

(71) Applicant: **HELIX BIOPHARMA CORP.** [CA/CA];
3-305 Industrial Parkway South, Aurora, Ontario L4G
6X7 (CA).

(72) Inventors: **CHAO, Herman**; 20 Gilbank Drive, Aurora,
Ontario L4G 5G4 (CA). **WONG, Wah**; 17915 77th Av-
enue, Edmonton, Alberta T5T 2S1 (CA). **SEGAL, Donald**;

Rural Route 3, Stouffville, Ontario L4A 7X4 (CA). **McEL-
ROY, Jerry**; 26 High Oak Trail, Richmond Hill, Ontario
L4E 3L0 (CA). **DOCHERTY, John**; 65 Ostick St., Au-
rora, Ontario L4G 7K4 (CA). **DICKSTEIN, Jodi**; 18 Cor-
nell Park Ave., Markham, Ontario L6B 1B5 (CA).

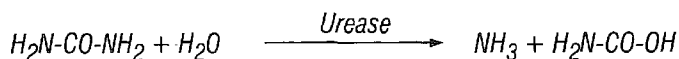
(74) Agents: **ERRATT, Judy, A.** et al.; Gowling Lafleur Hen-
derson LLP, 160 Elgin Street, suite 2600, Ottawa, Ontario
K1P 1C3 (CA).

(81) Designated States (*national*): AE, AG, AL, AM, AT, AU,
AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU,
CZ, DE, DK, DM, DZ, EC, 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, 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, UZ, VC, VN, YU, ZA, ZM, ZW.

(84) Designated States (*regional*): ARIPO patent (GH, GM,
KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW),

[Continued on next page]

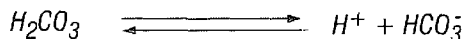
(54) Title: USE OF UREASE FOR INHIBITING CANCER CELL GROWTH



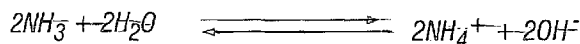
A



B



C



D

(57) Abstract: A pharmaceutical composition and method for use in inhibiting growth of cancer cells in a mammalian subject are disclosed. The composition includes a urease enzyme, and associated therewith, a chemical entity effective to enhance the delivery of the enzyme to cancer cells, when the composition is administered to the subject. Also disclosed are a method of enhancing the effectiveness of weakly basic anti-tumor compounds, a method assessing the presence, size or condition a solid tumor in a subject, and a gene therapy composition for treating a cancer in a subject.



Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM),
European patent (AT, BE, BG, CH, CY, CZ, DE, DK, EE,
ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PT, RO,
SE, SI, SK, TR), OAPI patent (BF, BJ, CF, CG, CI, CM,
GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

Published:

— with international search report

— before the expiration of the time limit for amending the
claims and to be republished in the event of receipt of
amendments

*For two-letter codes and other abbreviations, refer to the "Guid-
ance Notes on Codes and Abbreviations" appearing at the begin-
ning of each regular issue of the PCT Gazette.*