(20050777417)

02.12.05

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

(19) World Intellectual Property Organization
International Bureau

(43) International Publication Date
16 December 2004 (16.12.2004)

PCT

(10) International Publication Number
WO 2004/108088 A3

(51) International Patent Classification:
C07J 1/00 (2006.01) *A61K 31/70* (2006.01)

(21) International Application Number:
PCT/US2004/017788

(22) International Filing Date: 4 June 2004 (04.06.2004)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:
60/475,926 4 June 2003 (04.06.2003) US
10/455,215 4 June 2003 (04.06.2003) US

(71) Applicant *(for all designated States except US)*: **CANJI, INC.** [US/US]; 3525 John Hopkins Court, San Diego, CA 92121 (US).

(72) Inventors; and
(75) Inventors/Applicants *(for US only)*: **ENGLER, Heidrun** [DE/US]; 4547 DaVinci Street, San Diego, CA 92130 (US). **NAGABHUSHAN, Tattanahalli, L.** [US/US]; 3 Sunset Lane, Parsippany, NJ 07054 (US). **YOUNGSTER, Stephen** [US/US]; 213 Runyon Avenue, Piscataway, NJ 08854 (US). **CONNOR, Robert** [US/US]; 451 Lexington Circle, Oceanside, CA 92057 (US).

(74) Agents: **MYCROFT, Frank, J.** et al.; Townsend and Townsend and Crew LLP, Two Embarcadero Center, 8th Floor, San Francisco, CA 94111-3834 (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:
— *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*

(88) Date of publication of the international search report:
20 April 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: METHODS AND COMPOSITIONS FOR INTERFERON THERAPY

(57) Abstract: Methods and pharmaceutical compositions for administering protein or gene therapy to tissues or organs having an epithelial cell layer are provided. A protein or nucleic acid encoding the protein is administered to the target tissue or organ in combination with treatment with a delivery enhancing agent which increases the delivery of the interferon or nucleic acid to the cells of the target tissues or organs. The methods and combinations are particularly useful in the treatment of cancers and other conditions responsive to interferon therapy. An exemplary method comprises the transurethral intravesical administration to the bladder of a therapeutically effective amount of a pharmaceutical composition comprising an alpha-interferon or a gene delivery system encoding the interferon and SYN3 or a SYN3 homolog or analog. In the urinary bladder, as much as a 10 to 1000 fold increased in interferon levels and activity may be observed with the use of a SYN3 formulation as opposed to a PBS formulation of the same interferon protein or interferon gene delivery system.

WO 2004/108088 A3



162162



ACTION