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

(19) World Intellectual Property Organization
International Bureau

(43) International Publication Date
22 April 2004 (22.04.2004)

PCT

(10) International Publication Number
WO 2004/033667 A2

(51) International Patent Classification[7]: C12N

(21) International Application Number:
PCT/US2003/032602

(22) International Filing Date: 10 October 2003 (10.10.2003)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:
60/417,303 10 October 2002 (10.10.2002) US

(71) Applicant: DEPARTMENT OF VETERANS AFFAIRS, REHABILITATION R & D SERVICE [US/US]; 103 S. Gay Street, Baltimore, MD 21202 (US).

(72) Inventor: PHILLIPS, Catherine, A.; 3001 West 27th Avenue, Apt. #16, Amarillo, TX 79109 (US).

(74) Agent: KIMBALL, Paul, C.; Womble Carlyle Sandridge & Rice, P.O. Box 7037, Atlanta, GA 30357-0037 (US).

(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), 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:
— *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.

WO 2004/033667 A2

(54) Title: DETECTION, LOCALIZATION AND STAGING OF TUMORS USING LABELED ACTIVATED LYMPHOCYTES DIRECTED TO A TUMOR SPECIFIC EPITOPE

(57) Abstract: Disclosed are methods for detecting and localizing a cell-specific antigen in a mammal, such as a human subject, comprising exposing peripheral blood mononuclear cells (PBMCs) of the mammal to an immunogenic peptide epitope of the antigen, under conditions for antigen-specific activation of T lymphocytes in the PBMCs, thereby producing antigen-specific T lymphocytes that at least bind to the cell-specific antigen. Labeled antigen-specific T lymphocytes are administered to the mammal, typically without IL-2, either intraperitoneally or intravenously. The distribution of these cells in the mammal is determined by imaging, thereby detecting and localizing cell-specific antigen in the mammal. Exposing PBMCs to the immunogenic peptide typically involves a cell-free peptide preparation and interleukin-2 (IL-2), but no additional cells such as antigen presenting cells (APC) separately pulsed with antigen. The antigen-specific T lymphocytes typically are cytolytic for cells expressing the cell-specific antigen and may comprise CD4+, CD8+, and/or CD45RO+ memory T cells.