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

(19) World Intellectual Property Organization
International Bureau

(43) International Publication Date
26 June 2003 (26.06.2003)

PCT

(10) International Publication Number
WO 03/051392 A3

(51) International Patent Classification[7]: A61K 39/09, 39/385

(21) International Application Number: PCT/EP02/14476

(22) International Filing Date:
18 December 2002 (18.12.2002)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:
0130215.7 18 December 2001 (18.12.2001) GB

(71) Applicant *(for all designated States except US)*: **GLAXOSMITHKLINE BIOLOGICALS S.A.** [BE/BE]; 89, rue de l'Institut, B-1330 Rixensart (BE).

(72) Inventors; and
(75) Inventors/Applicants *(for US only)*: **LAFERRIERE, Craig, Anthony, Joseph** [CA/CA]; GlaxoSmithKline, 2030 Bristol Circle, Oakville, Ontario L6H 5V2 (CA). **POOLMAN, Jan** [NL/BE]; GlaxoSmithKline Biologicals, 89, rue de l'Institut, B-1330 Rixensart (BE).

(74) Agent: **EASEMAN, Richard, Lewis**; GlaxoSmithKline, 980 Great West Road, Brentford, Middlesex TW8 9GS (GB).

(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, NO, NZ, OM, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, TJ, TM, TN, TR, TT, TZ, UA, UG, US, 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, IE, IT, LU, MC, NL, PT, 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*

(88) Date of publication of the international search report:
13 November 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.

WO 03/051392 A3

(54) Title: STREPTOCOCCUS PNEUMONIAE VACCINE

(57) Abstract: The present invention provides an optimal formulation of multiple-serotype *Streptococcus pneumoniae* conjugate vaccines.