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

(19) World Intellectual Property Organization
International Bureau

(43) International Publication Date
16 September 2010 (16.09.2010)

PCT

(10) International Publication Number
WO 2010/102822 A1

(51) International Patent Classification:
A61K 39/285 (2006.01) *C12N 15/863* (2006.01)
C07K 14/07 (2006.01)

(21) International Application Number:
PCT/EP2010/001545

(22) International Filing Date:
11 March 2010 (11.03.2010)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:
61/159,857 13 March 2009 (13.03.2009) US
EP09009759 28 July 2009 (28.07.2009) EP

(71) Applicant *(for all designated States except US)*: **BAVARIAN NORDIC A/S** [DK/DK]; Hejreskovvej 10A, DK-3490 Kvistgaard (DK).

(72) Inventors; and
(75) Inventors/Applicants *(for US only)*: **BRINKMANN, Kay** [DE/DE]; Edlingerstrasse 14, 81543 München (DE). **BAUR, Karen** [DE/DE]; Daiserstrasse 15, 81371 München (DE). **HAUSMANN, Jürgen** [DE/DE]; Alte Bundesstrasse 130, 79194 Gundelfingen (DE).

(74) Agents: **PIELKEN, Petra** et al.; Bavarian Nordic GmbH, Fraunhoferstrasse 13, 82152 Martinsried (DE).

(81) Designated States *(unless otherwise indicated, for every kind of national protection available)*: AE, AG, AL, AM, AO, AT, AU, AZ, BA, BB, BG, BH, BR, BW, BY, BZ, CA, CH, CL, CN, CO, CR, CU, CZ, DE, DK, DM, DO, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, GT, HN, HR, HU, ID, IL, IN, IS, JP, KE, KG, KM, KN, KP, KR, KZ, LA, LC, LK, LR, LS, LT, LU, LY, MA, MD, ME, MG, MK, MN, MW, MX, MY, MZ, NA, NG, NI, NO, NZ, OM, PE, PG, PH, PL, PT, RO, RS, RU, SC, SD, SE, SG, SK, SL, SM, ST, SV, SY, TH, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, 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, HR, HU, IE, IS, IT, LT, LU, LV, MC, MK, MT, NL, NO, PL, PT, RO, SE, SI, SK, SM, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

Declarations under Rule 4.17:

— *as to the identity of the inventor (Rule 4.17(i))*

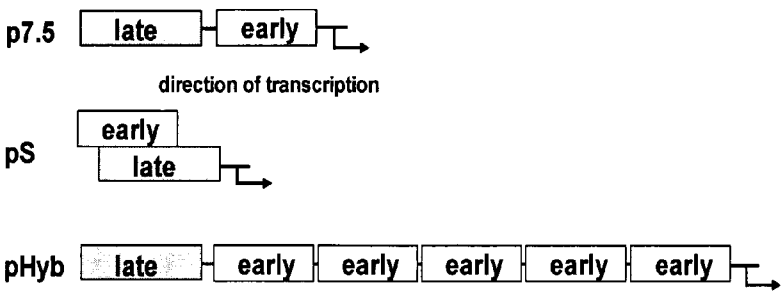
Published:

— *with international search report (Art. 21(3))*

— *with sequence listing part of description (Rule 5.2(a))*

(54) **Title**: OPTIMIZED EARLY-LATE PROMOTER COMBINED WITH REPEATED VACCINATION FAVORS CYTOTOXIC T CELL RESPONSE AGAINST ANTIGENS IN REPLICATION DEFICIENT RECOMBINANT VIRUS VACCINES

FIGURE 1 A



(57) **Abstract**: The present invention relates to a replication deficient recombinant virus encoding at least one antigen and/or antigenic epitope, wherein expression of said antigen and/or antigenic epitope is regulated by a transcriptional control element comprising at least two elements driving early expression of said antigen and/or antigenic epitope and the use of said replication deficient recombinant virus as medicament or vaccine.

WO 2010/102822 A1