

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

(19) World Intellectual Property
Organization
International Bureau

(43) International Publication Date
10 August 2023 (10.08.2023)



(10) International Publication Number
WO 2023/148642 A3

(51) International Patent Classification:

A61K 39/02 (2006.01) A61P 31/04 (2006.01)
A61K 39/12 (2006.01) A61P 31/12 (2006.01)
A61K 39/385 (2006.01)

(21) International Application Number:

PCT/IB2023/050902

(22) International Filing Date:

02 February 2023 (02.02.2023)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:

63/306,459 03 February 2022 (03.02.2022) US

(71) Applicant: BIOSYNTH S.R.L. [IT/IT]; Zona Industriale
Loc. Sentino, I-53040 Rapolano Terme (SI) (IT).

(72) Inventor: PORRO, Massimo; c/o BIOSYNTH S.r.l. -
Zona Industriale, 10 - Loc. Sentino, I-53040 RAPOLANO
TERME (SI) (IT).

(74) Agent: CALOGERO, Ida et al.; BIRD & BIRD SOCIETÀ
TRA AVVOCATI S.R.L., Via Porlezza, 12, I-20123 Mi-
lano (IT).

(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, BN, BR, BW, BY, BZ,
CA, CH, CL, CN, CO, CR, CU, CV, CZ, DE, DJ, DK, DM,
DO, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, GT,

HN, HR, HU, ID, IL, IN, IQ, IR, IS, IT, JM, JO, JP, KE,
KG, KH, KN, KP, KR, KW, KZ, LA, LC, LK, LR, LS, LU,
LY, MA, MD, MG, MK, MN, MW, MX, MY, MZ, NA, NG,
NI, NO, NZ, OM, PA, PE, PG, PH, PL, PT, QA, RO, RS,
RU, RW, SA, SC, SD, SE, SG, SK, SL, ST, SV, SY, TH,
TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, WS,
ZA, ZM, ZW.

(84) Designated States (unless otherwise indicated, for every
kind of regional protection available): ARIPO (BW, CV,
GH, GM, KE, LR, LS, MW, MZ, NA, RW, SC, SD, SL, ST,
SZ, TZ, UG, ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ,
RU, TJ, TM), European (AL, AT, BE, BG, CH, CY, CZ,
DE, DK, EE, ES, FI, FR, GB, GR, HR, HU, IE, IS, IT, LT,
LU, LV, MC, ME, MK, MT, NL, NO, PL, PT, RO, RS, SE,
SI, SK, SM, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN,
GQ, GW, KM, ML, MR, NE, SN, TD, TG).

Published:

- with international search report (Art. 21(3))
- before the expiration of the time limit for amending the
claims and to be republished in the event of receipt of
amendments (Rule 48.2(h))

(88) Date of publication of the international search report:

21 September 2023 (21.09.2023)

(54) Title: NANOSTRUCTURE-BASED VECTOR SYSTEM FOR BACTERIAL AND VIRAL ANTIGENS

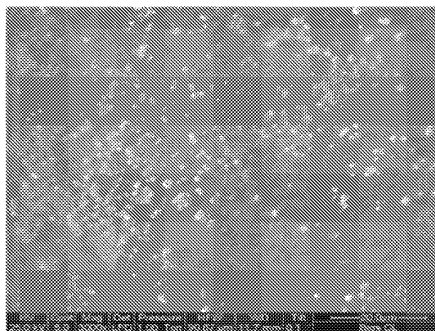


FIG. 1

(57) Abstract: The present invention relates to novel nanostructure-based vector system mimicking the shape and the size-characteristics of a viral nanoparticle and presenting functional antigens expressed by different viruses or bacteria to the host's immune system through the presentation together with a helper T-cell dependent carrier protein against which the host's immune system is universally primed through the serological presence of carrier-specific antibodies for triggering an immediate boost of the human immune system. The invention further relates to vaccines based on such nanostructure-based vector system for the prevention of infection mediated by viral and bacterial pathogens in a mammal host.



WO 2023/148642 A3