

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

(19) World Intellectual Property
Organization
International Bureau

(43) International Publication Date
16 July 2020 (16.07.2020)



(10) International Publication Number
WO 2020/145901 A1

(51) International Patent Classification:

C07K 7/06 (2006.01) A61K 35/12 (2015.01)
C12N 5/0783 (2010.01) A61P 31/20 (2006.01)
A61K 39/29 (2006.01)

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))
- in black and white; the international application as filed contained color or greyscale and is available for download from PATENTSCOPE

(21) International Application Number:

PCT/SG2020/050017

(22) International Filing Date:

13 January 2020 (13.01.2020)

(25) Filing Language:

English

(26) Publication Language:

English

(30) Priority Data:

10201900299V 11 January 2019 (11.01.2019) SG

(71) Applicant: **AGENCY FOR SCIENCE, TECHNOLOGY AND RESEARCH** [SG/SG]; 1 Fusionopolis Way, #20-10 Connexis North Tower, Singapore 138632 (SG).

(72) Inventors: **CHENG, Yang**; c/o Singapore Immunology Network, 8a Biomedical Grove, Level 3 Immunos Building, Singapore 138648 (SG). **NEWELL, Evan**; c/o Singapore Immunology Network, 8a Biomedical Grove, Level 3 Immunos Building, Singapore 138648 (SG).

(74) Agent: **AMICA LAW LLC**; 77 Robinson Road, #22-01 Robinson 77, Singapore 068896 (SG).

(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, CZ, DE, DJ, DK, DM, DO, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, GT, HN, HR, HU, ID, IL, IN, IR, IS, JO, JP, KE, KG, KH, KN, KP, KR, KW, KZ, LA, LC, LK, LR, LS, LU, LY, MA, MD, ME, 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, GH, GM, KE, LR, LS, MW, MZ, NA, RW, 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, MK, MT, NL, NO, PL, PT, RO, RS, SE, SI, SK, SM,

(54) Title: USE OF HLA-A*11:01-RESTRICTED HEPATITIS B VIRUS (HBV) PEPTIDES FOR IDENTIFYING HBV-SPECIFIC CD8+ T CELLS

(57) Abstract: The present invention relates to peptides and their ability to identify and bind to T cells specific for HBV-infected hepatocytes. In an first aspect of the invention, there is provided a peptide comprising an amino sequence selected from the group consisting of STLPETAVVRR, STLPETAVVR, STLPETTVVRR, STLPETTVIRR, STPPETTVVRR, STLPETTVVGR and STIPETTVVRR, wherein the peptide is derived from Hepatitis B virus core169 and is capable of binding HLA-A*1101 and when bound to HLA-A*1101 is capable of identifying T cells specific for Hepatitis B virus. In a second aspect of the invention, there is provided a T cell expressing a T cell receptor (TCR) molecule, wherein the TCR molecule comprises an amino acid sequence selected from the group comprising: CASGDSNSPLHF, CASSGGQIVYEQYF, CSARGGRGGDYTF and CASSQDWTEAFF, the T cell receptor is able to bind to a peptide according to the first aspect of the invention.



WO 2020/145901 A1