

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

(19) World Intellectual Property
Organization

International Bureau

(43) International Publication Date
13 January 2022 (13.01.2022)



(10) International Publication Number
WO 2022/010353 A1

(51) International Patent Classification:

G01N 33/569 (2006.01) A61P 31/14 (2006.01)
C07K 16/10 (2006.01) A61K 39/215 (2006.01)

Published:

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

(21) International Application Number:

PCT/NL2021/050435

(22) International Filing Date:

09 July 2021 (09.07.2021)

(25) Filing Language:

English

(26) Publication Language:

English

(30) Priority Data:

2026043 10 July 2020 (10.07.2020) NL

(71) Applicant: **LEYDEN LABORATORIES B.V.** [NL/NL];
Keizersgracht 290 A, 1016 EW Amsterdam (NL).

(72) Inventors: **GOUDSMIT, Jaap**; c/o Keizersgracht 290 A,
1016 EW Amsterdam (NL). **VAN GILS, Marit Johanna**;
c/o Keizersgracht 290 A, 1016 EW Amsterdam (NL). **SAN-**
DERS, Rogier Willem; c/o Keizersgracht 290 A, 1016 EW
Amsterdam (NL).

(74) Agent: **WITMANS, H.A.**; V.O., P.O. Box 87930, 2508 DH
Den Haag (NL).

(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, IT, 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,
TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW,
KM, ML, MR, NE, SN, TD, TG).

(54) Title: METHODS FOR IDENTIFYING CORONAVIRUS CROSS-REACTING ANTIBODIES

(57) Abstract: The disclosure provides methods for identifying coronavirus cross-reacting antibodies. Such antibodies bind to at least part of the S2 ectodomain of the S protein of at least one common human coronavirus selected from HCoV-NL63, HCoV-OC43, HCoV-229E and HCoV-HKU1 and bind to at least part of the S2 ectodomain of the S protein of at least one highly pathogenic human coronavirus selected from SARS-CoV-1, MERS-CoV and SARS-CoV-2. Antibodies identified by the methods described herein are particularly useful for treating or preventing coronaviral infections, in particular against highly pathogenic coronaviruses such as SARS-CoV-1, MERS-CoV and/or SARS-CoV-2 as well as cross-species transmission of typically non-human coronaviruses.



WO 2022/010353 A1