


Study report

Clinical Performance Study for SARS-CoV-2 Antigen Rapid Detection Kit (Colloidal Gold Method) for layperson use

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2 Responsibilities and competences

Sponsor	Name	Ningbo Lvtang Biotechnology Co., Ltd.
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	Website	www.lvtangbio.com
CRO 1	Name	in.vent Diagnostica GmbH
	Address	Neuendorfstraße 17, 16761 Hennigsdorf Germany
	Website	www.invent.bio
CRO 2	Name	OSMUNDA Medical Technology Service GmbH
	Address	Treskowallee 108, 10318 Berlin
	Website	en.osmundacn.com
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	Institution	in.vent Diagnostica GmbH
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	Institution	in.vent Diagnostica GmbH
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Principal investigator, cross-reactivity testing	Name	Dr. Dirk Lassner
	Institution	in.vent Diagnostica GmbH
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Study site 1

Name **Testzentrum Hennigsdorf**
Address Postplatz 3a, 16761 Hennigsdorf
Website www.testzentrum-hennigsdorf.de
Owner invent Diagnostica GmbH

Study site 2

Name **Labor Dr. Quade und Kollegen GmbH**
Address Aachener Straße 338, 50933 Köln
Website www.lab-quade.de

Study site 3

Name **Diagnostic HealthCare Solutions GmbH**
Address Nazarethkirchstraße 50, 13347 Berlin
Website www.dhs-lab.de

3 Introduction

SARS-CoV-2 (Severe Acute Respiratory Syndrome Coronavirus 2, previously known as 2019-nCoV), first reported in December of 2019, is a novel RNA virus of the beta coronavirus family. The virus consists of four structural proteins: S (Spike), M (Membrane), E (Envelope), and N (Nucleocapsid).

Human-to-human transmission of the virus has been confirmed and occurs primarily via respiratory droplets from coughs and sneezes. The high infection rate led to a rapid global spread of the virus which was declared a pandemic by the World Health Organisation (WHO) on March 11th, 2020. The WHO has named the disease caused by SARS-CoV-2 as coronavirus disease 2019 (abbreviated 'COVID-19'). It is the seventh known coronavirus to infect people, after 229E, NL63, OC43, HKU1, MERS-CoV, and SARS-CoV. Other coronaviruses are capable of causing illnesses ranging from the common cold to more severe diseases such as Middle East respiratory syndrome (MERS).

People who have confirmed COVID-19 show a range of symptoms, from people with little to no symptoms to people being severely sick and dying. Typical symptoms include fever, tiredness, and dry cough. Some patients may have aches and pains, nasal congestion, runny nose, sore throat, or diarrhoea. These symptoms are usually mild and begin gradually. Some people become infected but don't develop any symptoms. Aged people, and those with underlying medical problems like high blood pressure, heart problems or diabetes, are more likely to develop serious illness. Human-to-human transmission of the virus has been confirmed and occurs primarily via respiratory droplets from coughs and sneezes.

The continuously high number of reported cases of COVID-19 has highlighted the recurring need to efficiently identify individuals currently and previously infected with SARS-CoV-2. In order to do this, in vitro diagnostics (IVDs) of assured quality, safety and performance are required.

In course of this study, the SARS-CoV-2 Antigen Detection Kit (Colloidal Gold Method) for lay-person use by Ningbo Lvtang Biotechnology Co., Ltd., was tested for clinical performance. In this report, this assay is also referred to as index test.

4 Study objective

The purpose of this study was the comparison of index test results of included study samples with reference test results in order to assess the clinical performance of the index test. The study was designed in consideration of the recommendations set forth in MDCG guideline 2021-21 'Guidance on performance evaluation of SARS-CoV-2 in vitro diagnostic medical devices'. Obtained data will be used in the application for CE-certification of the index test.

5 Diagnostic methods

5.1 Index test

5.1.1 Name:

SARS-CoV-2 Antigen Detection Kit (Colloidal Gold Method) for layperson use

Model: CovAg-T/ CovAg-N/ CovAg-Ng

Lot-Nr.: 22012201AG0

5.1.2 Manufacturer:

NINGBO LVTANG BIOTECHNOLOGY CO., LTD.

No. 9 Dongpu Road, Chengdong Industrial Area, Daxu Town, Xiangshan County, Ningbo City, Zhejiang Province, China

5.1.3 Intended purpose:

The SARS-CoV-2 Antigen Detection Kit (Colloidal Gold Method) is used for the qualitative detection of SARS-CoV-2 nucleocapsid antigen in human nasopharyngeal, oropharyngeal, or nasal swab samples.

Swab samples are mixed with the extraction buffer and applied to the sampling area on the test cartridge. Capillary force draws the sample over the detection pad where any present SARS-CoV-2 nucleocapsid protein merges with colloidal gold labelled SARS-CoV-2 antibodies. This immunocomplex is hybridised with immobilised anti SARS-CoV-2 antibodies and form a fuchsia detection line representing positivity for SARS-CoV-2 antigen. Furthermore, the test kit membrane contains a quality control line that will form a coloured line upon contact with the sample buffer regardless of whether SARS-CoV-2 nucleocapsid antigen is present or not.

5.2 Reference test

5.2.1 Name:

virellaSARS-CoV-2 seqc real time RT-PCR Kit

5.2.2 Manufacturer:

gerbion GmbH & Co. KG

Remsstraße 1, 70806 Kornwestheim

Germany

5.2.3 Intended purpose:

The virellaSARS-CoV-2 seqc real time RT-PCR Kit is a screening assay for the simultaneous detection of RNA of novel coronavirus (SARS-CoV-2) and other Betacoronaviruses (e.g. MERS-CoV, SARS-CoV) extracted from biological specimens.

5.3 Other diagnostic methods

5.3.1 Variant analysis:

For variant analysis, virellaSARS-CoV-2 mutant 3 real time RT-PCR Kit by Gerbion GmbH & Co. KG was used.

For Omicron variant subgroup analysis, VoXscreen Omicron BA.1 / BA.2 SARS-CoV-2 Screening & Variant Detection Kit by GenXPro, Altenhöferallee 3, 60438 Frankfurt am Main, was used.

PCRs were conducted on a LightCycler® 480 II by Roche Diagnostics Ltd.

6 Relevant dates

Study initiation:	March 16 th , 2022
Study completion:	April 11 th , 2022
Study evaluation:	April 11 th , 2022
Report finalised:	April 11 th , 2022

7 Study sites

7.1 Study site 1 (sample collection, index test analysis):

Testzentrum Hennigsdorf

Address: Postplatz 3a, 16761 Hennigsdorf

Website: www.testzentrum-hennigsdorf.de

Owner: invent Diagnostica GmbH

7.2 Study site 2 (sample collection, index test analysis):

Labor Dr. Quade und Kollegen GmbH
Aachener Straße 338, 50933 Köln
www.lab-quade.de

7.3 Study site 3 (PCR analysis):

Diagnostic HealthCare Solutions GmbH
Address: Nazarethkirchstraße 50, 13347 Berlin
Website: www.dhs-lab.de

8 Training of site staff

Testzentrum Hennigsdorf:

The study site functions as an official public SARS-CoV-2 testing centre. Study site personnel is experienced in the daily conduct of different SARS-CoV-2 antigen rapid tests as well as the collection of nasal and nasopharyngeal swabs.

Diagnostic HealthCare Solutions GmbH:

The study site disposes of a medical routine laboratory disposing of trained personnel accustomed to the conduct of qRT-PCR tests. Since the beginning of the SARS-CoV-2 pandemic, the study site has implemented SARS-CoV-2 testing via qRT-PCR in the daily routine.

9 Device deficiencies

No device deficiencies were noticed during the course of the study.

10 Study content

10.1 Sensitivity and specificity

Anonymised nasal and nasopharyngeal swabs from the diagnostic routine of a SARS-CoV-2 testing centre (study site 1) and a routine laboratory (study site 2) were analysed in course of this study. Nasal and nasopharyngeal swabs were collected during diagnostic routine. Nasal swabs were analysed with the index test according to manufacturer's IFUs. Nasopharyngeal swabs were stored and transported at $<-18^{\circ}\text{C}$ until analysis by the reference test according to manufacturer's IFUs. Additionally, a mutant variant analysis was conducted with virellaSARS-CoV-2 mutant 3 real time RT-PCR kit by gerbion GmbH & Co. KG. For Omicron variant subgroup analysis, VoXcreen Omicron BA.1 / BA.2 SARS-CoV-2 Screening & Variant Detection Kit by GenXPro was used.

Positive (PPA), negative (NPA), and overall percent agreement (OPA) between index and reference test result was calculated during data analysis.

10.1.1 Collected samples:

10.1.1.1 Positive samples:

132 SARS-CoV-2 positive nasal and nasopharyngeal swab samples, confirmed by qRT-PCR, were collected at study site 1.

10.1.1.2 Negative samples:

289 SARS-CoV-2 negative nasal and nasopharyngeal swab samples, confirmed by qRT-PCR, were collected at study site 1.

25 SARS-CoV-2 negative nasal swab samples, confirmed by qRT-PCR, were collected and analysed at study site 2.

10.2 Specificity towards potentially cross-reacting antigens

A total of 60 samples positive for potentially cross-reacting viruses were tested with the index test to assess its susceptibility to react with non-SARS-CoV-2 antigens: 37 nasal swab samples from 23 SARS-CoV-2 negative donors and 23 unused nasal swabs were spiked with dilutions of different strains of potentially interfering viruses (Influenza A, Influenza B, RSV A, RSV B, Coronavirus 229E, Coronavirus NL63, Parainfluenza Type 2) and analysed with the index test. Spiking solutions were prepared from cell culture products, containing native and differently treated virus particles (see below). The different treatment methods result in specific variations of antigen structures. Such virus preparations are optimal for testing on cross-reactions and interfering effects of antigen tests.

The following virus stocks were used as spiking reagents:



1. Heat-inactivated RSV A and Influenza A (Fraunhofer Institute for Cell Therapy and Immunology Leipzig, FHI-IZI):
 - a. RSV A, sample A1: 10^6 - 10^8 virus particles/ml
 - b. RSV A, sample A2: 10^6 - 10^8 virus particles/ml
 - c. Influenza A (H3N5): 10^6 - 10^8 virus particles/ml
2. Electron beam (EBEAM) inactivated RSV A and Influenza A (Fraunhofer Institute for Cell Therapy and Immunology Leipzig, FHI-IZI):
 - a. Influenza A (H3N8): 10^6 - 10^8 virus particles/ml
 - b. RSV A, sample A2: 10^6 - 10^8 virus particles/ml
 - c. Influenza A (H3N5): 10^6 - 10^8 virus particles/ml
3. Native Influenza A, H1N1 (FU Berlin, Institute of Virology):
 - a. Sample 51: 4×10^5 PFU/ml
 - b. Sample 52: 1×10^5 PFU/ml
 - c. Sample 53: 3.8×10^4 PFU/ml
4. RSV B: $1,05 \times 10^6$ TCID₅₀/ml (ZeptoMetrix, USA)
5. Influenza B: $1,70 \times 10^5$ TCID₅₀/ml (ZeptoMetrix, USA)
6. Coronavirus 229E: $3,55 \times 10^5$ TCID₅₀/ml (ZeptoMetrix, USA)
7. Coronavirus NL63: $1,41 \times 10^5$ TCID₅₀/ml (ZeptoMetrix, USA)
8. Parainfluenza Type 2: $5,62 \times 10^4$ TCID₅₀/ml (ZeptoMetrix, USA)

As positive control, Nucleocapsid-Antigen of SARS-CoV2 (0,2µg/ml) from Sinobiological was used.

1:10, 1:50, and 1:100 dilutions of virus stocks were prepared in PBS buffer. Nasal swabs were submersed in 50µl of virus stock dilutions, resulting in complete soak up of presented solution. These nasal swabs were applied directly to antigen testing according to manufacturer's IFUs.

11 Analysis

11.1 Positive samples (132 cases)

A total of 132 samples that were analysed as SARS-CoV-2 positive in qRT-PCR was used in this study. Test results and available mutation analysis results are summarised in Table 1:

Number	gender	age in years	Index test result	PCR result	RdRpS	E-Gen	Mutation
1	female	41	negative	positive	36,44	32,32	-
2	female	52	positive	positive	29,22	26,16	-
3	female	51	positive	positive	27	25,01	-
4	female	35	positive	positive	36,73	33,03	-
5	female	45	positive	positive	24,82	22,39	-
6	male	56	positive	positive	29,55	26,69	-
7	female	19	positive	positive	22,71	22,43	-
8	male	43	positive	positive	22,51	21,34	-
9	female	54	positive	positive	21,34	20,07	-
10	female	63	positive	positive	22,37	21,32	-
11	female	21	positive	positive	26,46	25,99	-
12	female	35	positive	positive	26,15	24,93	-
13	female	27	positive	positive	28,65	26,35	-
14	male	55	positive	positive	22,15	19,35	-
15	male	76	positive	positive	24,84	22,53	-
16	female	65	positive	positive	21,53	19,4	-
17	male	36	positive	positive	22,03	19,53	-
18	male	49	positive	positive	22,85	20,81	-
19	female	26	positive	positive	25,07	23,06	-
20	female	37	positive	positive	25,21	22,38	-
21	male	30	positive	positive	21,89	19,48	-
22	female	54	positive	positive	27,96	25,21	-
23	male	39	positive	positive	22,16	20,78	-
24	female	46	positive	positive	21,6	19,51	-
25	female	58	positive	positive	24,36	22,79	-
26	male	59	positive	positive	25,07	22,53	-
27	female	34	positive	positive	18,88	17,07	-
28	male	37	positive	positive	25,67	23,45	-
29	male	53	positive	positive	24,23	21,92	-
30	female	43	positive	positive	32,46	29,82	-

31	female	38	positive	positive	23,43	22,41	-
32	female	31	positive	positive	33,85	29,89	-
33	male	24	positive	positive	26,07	25,74	-
34	male	32	negative	positive	30,06	28,33	BA.2
35	male	34	positive	positive	26,8	26,15	-
36	female	19	positive	positive	22,71	22,43	BA.2
37	female	6	positive	positive	25,41	24,76	BA.2
38	male	5	positive	positive	23,44	22,77	BA.2
39	male	4	positive	positive	31,92	27,55	BA.2
40	male	52	positive	positive	23,87	22,9	BA.2
41	male	11	positive	positive	18,99	18,31	BA.2
42	male	47	positive	positive	26,11	23,93	BA.2
43	male	55	positive	positive	37,17	33,83	BA.2
44	male	24	negative	positive	26,07	25,74	BA.2
45	female	54	positive	positive	30,71	27,93	BA.2
46	female	52	positive	positive	28,55	27,01	BA.2
47	male	47	negative	positive	26,06	24,13	BA.2
48	female	13	positive	positive	25,18	24,42	-
49	male	11	positive	positive	22,02	20,93	BA.2
50	female	48	positive	positive	30,72	29	BA.2
51	female	12	positive	positive	34,64	28,7	BA.2
52	female	54	positive	positive	21,34	20,07	BA.2
53	female	48	positive	positive	26,16	23,45	BA.2
54	male	30	positive	positive	21,89	19,48	BA.2
55	male	36	positive	positive	25,97	23,77	BA.2
56	female	40	positive	positive	30,38	25,43	BA.2
57	female	50	positive	positive	25,14	23,45	BA.2
58	male	14	positive	positive	26,6	26,1	BA.2
59	male	53	positive	positive	25,04	23,77	BA.2
60	female	29	positive	positive	34,48	29,39	BA.2
61	female	16	positive	positive	23,82	21,89	BA.2
62	male	41	positive	positive	26,16	23,08	BA.2
63	male	62	positive	positive	21,69	18,42	BA.2
64	male	40	positive	positive	26,44	24,62	BA.2
65	female	38	positive	positive	23,43	22,41	BA.2
66	male	38	positive	positive	25,67	23,45	BA.2
67	female	7	positive	positive	22,51	21,34	BA.2
68	female	26	positive	positive	28,65	26,35	BA.2
69	female	56	positive	positive	24,1	23,38	BA.2

70	female	4	positive	positive	24,1	23,43	BA.2
71	female	27	positive	positive	25,07	23,06	BA.2
72	female	31	positive	positive	34,94	36,45	BA.2
73	male	55	positive	positive	21,17	20,17	BA.2
74	female	45	positive	positive	20,72	18,55	BA.2
75	male	53	positive	positive	24,23	21,92	BA.2
76	female	50	positive	positive	27,58	25,39	BA.2
77	female	57	positive	positive	24,17	21,96	BA.2
78	female	35	positive	positive	36,73	33,03	BA.1
79	female	57	positive	positive	34,32	32,34	BA.2
80	male	76	positive	positive	24,84	22,53	BA.1
81	female	45	positive	positive	24,82	22,39	BA.2
82	male	39	positive	positive	21,89	19,52	BA.2
83	female	65	positive	positive	21,53	19,4	BA.1
84	male	56	positive	positive	29,55	26,69	-
85	male	54	positive	positive	24,07	22,21	BA.1
86	male	51	positive	positive	25,74	24,09	BA.2
87	female	44	positive	positive	31,25	26,75	BA.2
88	female	43	negative	positive	32,46	29,82	BA.2
89	female	34	positive	positive	24,11	22,08	BA.1
90	female	43	positive	positive	28,2	26,91	BA.2
91	female	39	positive	positive	25,8	24,73	BA.2
92	male	45	positive	positive	26,9	25,23	BA.2
93	female	56	positive	positive	22,27	21,22	BA.2
94	male	53	positive	positive	21,13	19,06	BA.2
95	female	37	positive	positive	25,21	22,38	BA.2
96	female	10	positive	positive	28,73	26,85	BA.2
97	female	34	positive	positive	18,99	17,73	BA.2
98	female	21	positive	positive	26,46	25,99	-
99	female	5	positive	positive	23,25	21,87	BA.2
100	female	35	positive	positive	22,28	20,21	BA.2
101	female	31	positive	positive	25,81	23,78	BA.2
102	female	62	positive	positive	22,37	21,32	BA.2
103	female	22	positive	positive	22,69	21,01	BA.2
104	female	51	positive	positive	27	25,01	BA.2
105	male	35	positive	positive	21,06	20,74	BA.2
106	female	2	positive	positive	31,76	31,02	BA.2
107	male	42	positive	positive	23,13	21,64	BA.2
108	male	50	positive	positive	35,88	31,23	BA.2

109	female	34	positive	positive	18,88	17,07	BA.2
110	female	51	positive	positive	25,93	22,38	BA.2
111	female	27	positive	positive	30,97	27,43	BA.2
112	female	75	positive	positive	26,36	24,7	BA.2
113	female	55	positive	positive	17,85	16,27	BA.2
114	female	20	positive	positive	36,32	30,58	BA.2
115	female	59	positive	positive	23,86	21,55	BA.2
116	male	49	positive	positive	22,85	20,81	BA.2
117	male	36	positive	positive	22,03	19,53	BA.2
118	female	19	positive	positive	24,97	23,02	BA.2
119	female	31	positive	positive	33,85	29,89	BA.2
120	male	58	positive	positive	25,6	23,85	BA.1
121	female	58	positive	positive	35,27	31,39	BA.1
122	female	38	positive	positive	25,11	24,24	BA.2
123	female	37	positive	positive	22,92	22,19	BA.2
124	female	39	positive	positive	19,33	16,48	BA.2
125	female	21	positive	positive	27,43	25,38	BA.2
126	female	41	positive	positive	25,08	22,25	BA.2
127	male	36	positive	positive	23,98	22,14	BA.2
128	male	55	positive	positive	22,15	19,35	BA.2
129	female	6	positive	positive	32,59	30,5	BA.2
130	male	12	positive	positive	21,09	19,61	BA.2
131	female	47	positive	positive	25,12	24,78	BA.2
132	male	45	negative	positive	33,91	34,17	BA.1

Table 1: Test result overview for SARS-CoV-2 positive samples. Test results marked red are false-negative results. Samples depicted BA.1 or BA.2 were analysed as SARS-CoV-2 Omicron variant subtypes BA.1 and BA.2, respectively.

Of 132 total samples analysed as SARS-CoV-2 positive by qRT-PCR, 6 were false-negative in the index test. All other analysed samples were correctly identified as positive.

95 of the SARS-CoV-2 positive samples were identified as SARS-CoV-2 Omicron variant. 8 of these samples were analysed to be subvariant BA.1, 87 to be subvariant BA.2.

11.2 Negative samples (314 cases)

A total of 314 samples that were analysed as SARS-CoV-2 negative in qRT-PCR was used in this study. Test results are summarised in Table 2:



Number	gender	age in years	Index test result	PCR result	RdRpS	E-Gen	Mutation
1	female	42	negative	negative	-	-	-
2	female	36	negative	negative	-	-	-
3	female	25	negative	negative	-	-	-
4	female	30	negative	negative	-	-	-
5	female	30	negative	negative	-	-	-
6	female	23	negative	negative	-	-	-
7	male	24	negative	negative	-	-	-
8	female	27	negative	negative	-	-	-
9	male	29	negative	negative	-	-	-
10	female	14	negative	negative	-	-	-
11	female	52	negative	negative	-	-	-
12	male	32	negative	negative	-	-	-
13	male	20	negative	negative	-	-	-
14	female	30	negative	negative	-	-	-
15	female	30	negative	negative	-	-	-
16	female	40	negative	negative	-	-	-
17	female	38	negative	negative	-	-	-
18	female	60	negative	negative	-	-	-
19	male	57	negative	negative	-	-	-
20	male	56	negative	negative	-	-	-
21	male	48	negative	negative	-	-	-
22	female	58	negative	negative	-	-	-
23	female	35	negative	negative	-	-	-
24	female	23	negative	negative	-	-	-
25	male	39	negative	negative	-	-	-
26	female	43	negative	negative	-	-	-
27	female	35	negative	negative	-	-	-
28	female	47	negative	negative	-	-	-
29	female	43	negative	negative	-	-	-
30	male	31	negative	negative	-	-	-
31	female	44	negative	negative	-	-	-
32	male	33	negative	negative	-	-	-
33	female	50	negative	negative	-	-	-
34	female	35	negative	negative	-	-	-
35	female	48	negative	negative	-	-	-
36	female	45	negative	negative	-	-	-
37	female	57	negative	negative	-	-	-

38	female	47	negative	negative	-	-	-
39	female	49	negative	negative	-	-	-
40	female	39	negative	negative	-	-	-
41	female	22	negative	negative	-	-	-
42	male	56	negative	negative	-	-	-
43	female	44	negative	negative	-	-	-
44	male	40	negative	negative	-	-	-
45	male	23	negative	negative	-	-	-
46	female	53	negative	negative	-	-	-
47	female	41	negative	negative	-	-	-
48	male	59	negative	negative	-	-	-
49	female	37	negative	negative	-	-	-
50	female	62	negative	negative	-	-	-
51	female	38	negative	negative	-	-	-
52	male	40	negative	negative	-	-	-
53	female	52	negative	negative	-	-	-
54	female	45	negative	negative	-	-	-
55	female	42	negative	negative	-	-	-
56	male	61	negative	negative	-	-	-
57	female	44	negative	negative	-	-	-
58	female	33	negative	negative	-	-	-
59	female	61	negative	negative	-	-	-
60	female	52	negative	negative	-	-	-
61	male	57	negative	negative	-	-	-
62	female	45	negative	negative	-	-	-
63	female	34	negative	negative	-	-	-
64	female	35	negative	negative	-	-	-
65	female	45	negative	negative	-	-	-
66	female	40	negative	negative	-	-	-
67	male	70	negative	negative	-	-	-
68	female	22	negative	negative	-	-	-
69	female	58	negative	negative	-	-	-
70	male	73	negative	negative	-	-	-
71	female	69	negative	negative	-	-	-
72	male	55	negative	negative	-	-	-
73	female	36	negative	negative	-	-	-
74	male	65	negative	negative	-	-	-
75	female	51	negative	negative	-	-	-
76	female	53	negative	negative	-	-	-

77	female	42	negative	negative	-	-	-
78	female	61	negative	negative	-	-	-
79	male	21	negative	negative	-	-	-
80	male	69	negative	negative	-	-	-
81	female	53	negative	negative	-	-	-
82	male	23	negative	negative	-	-	-
83	female	49	negative	negative	-	-	-
84	female	21	negative	negative	-	-	-
85	female	43	negative	negative	-	-	-
86	male	21	negative	negative	-	-	-
87	male	21	negative	negative	-	-	-
88	female	64	negative	negative	-	-	-
89	female	63	negative	negative	-	-	-
90	female	31	negative	negative	-	-	-
91	female	31	negative	negative	-	-	-
92	female	33	negative	negative	-	-	-
93	male	40	negative	negative	-	-	-
94	male	63	negative	negative	-	-	-
95	female	48	negative	negative	-	-	-
96	male	48	negative	negative	-	-	-
97	female	47	negative	negative	-	-	-
98	male	20	negative	negative	-	-	-
99	female	49	negative	negative	-	-	-
100	male	34	negative	negative	-	-	-
101	male	34	negative	negative	-	-	-
102	female	49	negative	negative	-	-	-
103	male	60	negative	negative	-	-	-
104	male	25	negative	negative	-	-	-
105	male	54	negative	negative	-	-	-
106	female	66	negative	negative	-	-	-
107	male	57	negative	negative	-	-	-
108	male	53	negative	negative	-	-	-
109	female	34	negative	negative	-	-	-
110	female	18	negative	negative	-	-	-
111	female	18	negative	negative	-	-	-
112	female	42	negative	negative	-	-	-
113	male	45	negative	negative	-	-	-
114	female	58	negative	negative	-	-	-
115	male	26	negative	negative	-	-	-

116	male	56	negative	negative	-	-	-
117	female	51	negative	negative	-	-	-
118	female	26	negative	negative	-	-	-
119	female	63	negative	negative	-	-	-
120	male	44	negative	negative	-	-	-
121	male	57	negative	negative	-	-	-
122	female	21	negative	negative	-	-	-
123	female	19	negative	negative	-	-	-
124	male	32	negative	negative	-	-	-
125	female	23	negative	negative	-	-	-
126	male	29	negative	negative	-	-	-
127	female	18	negative	negative	-	-	-
128	female	20	negative	negative	-	-	-
129	female	18	negative	negative	-	-	-
130	male	22	negative	negative	-	-	-
131	female	18	negative	negative	-	-	-
132	female	26	negative	negative	-	-	-
133	male	50	negative	negative	-	-	-
134	female	39	negative	negative	-	-	-
135	male	22	negative	negative	-	-	-
136	female	29	negative	negative	-	-	-
137	male	55	negative	negative	-	-	-
138	female	44	negative	negative	-	-	-
139	female	20	negative	negative	-	-	-
140	female	69	negative	negative	-	-	-
141	female	21	negative	negative	-	-	-
142	male	51	negative	negative	-	-	-
143	female	20	negative	negative	-	-	-
144	female	18	negative	negative	-	-	-
145	female	19	negative	negative	-	-	-
146	male	45	negative	negative	-	-	-
147	female	20	negative	negative	-	-	-
148	female	45	negative	negative	-	-	-
149	male	52	negative	negative	-	-	-
150	female	20	negative	negative	-	-	-
151	male	21	negative	negative	-	-	-
152	male	70	negative	negative	-	-	-
153	female	34	negative	negative	-	-	-
154	female	20	negative	negative	-	-	-

155	female	41	negative	negative	-	-	-
156	female	41	negative	negative	-	-	-
157	female	35	negative	negative	-	-	-
158	male	32	negative	negative	-	-	-
159	male	35	negative	negative	-	-	-
160	female	18	negative	negative	-	-	-
161	male	29	negative	negative	-	-	-
162	female	21	negative	negative	-	-	-
163	female	18	positive	negative	-	-	-
164	female	26	negative	negative	-	-	-
165	female	56	negative	negative	-	-	-
166	female	25	negative	negative	-	-	-
167	female	43	negative	negative	-	-	-
168	male	49	negative	negative	-	-	-
169	female	53	negative	negative	-	-	-
170	female	57	negative	negative	-	-	-
171	female	19	negative	negative	-	-	-
172	female	34	negative	negative	-	-	-
173	female	35	negative	negative	-	-	-
174	female	41	negative	negative	-	-	-
175	female	39	negative	negative	-	-	-
176	male	28	negative	negative	-	-	-
177	male	25	negative	negative	-	-	-
178	female	50	negative	negative	-	-	-
179	female	60	negative	negative	-	-	-
180	male	23	negative	negative	-	-	-
181	male	29	negative	negative	-	-	-
182	male	59	negative	negative	-	-	-
183	male	32	negative	negative	-	-	-
184	female	35	negative	negative	-	-	-
185	male	19	negative	negative	-	-	-
186	male	30	negative	negative	-	-	-
187	female	20	negative	negative	-	-	-
188	male	37	negative	negative	-	-	-
189	female	32	negative	negative	-	-	-
190	female	45	negative	negative	-	-	-
191	female	41	negative	negative	-	-	-
192	male	49	negative	negative	-	-	-
193	male	18	negative	negative	-	-	-

194	male	23	negative	negative	-	-	-
195	male	70	negative	negative	-	-	-
196	male	23	negative	negative	-	-	-
197	female	45	negative	negative	-	-	-
198	female	33	negative	negative	-	-	-
199	female	24	negative	negative	-	-	-
200	female	37	negative	negative	-	-	-
201	female	40	negative	negative	-	-	-
202	male	48	negative	negative	-	-	-
203	female	24	negative	negative	-	-	-
204	male	28	negative	negative	-	-	-
205	male	33	negative	negative	-	-	-
206	male	28	negative	negative	-	-	-
207	female	24	negative	negative	-	-	-
208	female	20	negative	negative	-	-	-
209	female	55	positive	negative	-	-	-
210	male	60	negative	negative	-	-	-
211	male	67	negative	negative	-	-	-
212	female	58	negative	negative	-	-	-
213	female	61	negative	negative	-	-	-
214	female	48	negative	negative	-	-	-
215	female	21	negative	negative	-	-	-
216	female	40	negative	negative	-	-	-
217	male	23	negative	negative	-	-	-
218	female	77	negative	negative	-	-	-
219	female	48	negative	negative	-	-	-
220	male	32	negative	negative	-	-	-
221	female	27	negative	negative	-	-	-
222	female	24	positive	negative	-	-	-
223	female	18	positive	negative	-	-	-
224	female	63	negative	negative	-	-	-
225	female	12	negative	negative	-	-	-
226	female	49	negative	negative	-	-	-
227	male	55	negative	negative	-	-	-
228	female	30	negative	negative	-	-	-
229	female	20	negative	negative	-	-	-
230	male	63	negative	negative	-	-	-
231	female	60	negative	negative	-	-	-
232	female	55	negative	negative	-	-	-

233	male	52	negative	negative	-	-	-
234	male	17	negative	negative	-	-	-
235	diverse	36	negative	negative	-	-	-
236	male	37	negative	negative	-	-	-
237	female	42	negative	negative	-	-	-
238	female	56	negative	negative	-	-	-
239	female	42	negative	negative	-	-	-
240	female	32	negative	negative	-	-	-
241	male	82	negative	negative	-	-	-
242	female	48	negative	negative	-	-	-
243	female	36	negative	negative	-	-	-
244	female	32	negative	negative	-	-	-
245	male	2	negative	negative	-	-	-
246	female	34	negative	negative	-	-	-
247	female	36	negative	negative	-	-	-
248	female	53	negative	negative	-	-	-
249	female	38	negative	negative	-	-	-
250	female	33	negative	negative	-	-	-
251	female	42	negative	negative	-	-	-
252	female	38	negative	negative	-	-	-
253	female	39	negative	negative	-	-	-
254	female	36	negative	negative	-	-	-
255	male	25	negative	negative	-	-	-
256	female	37	negative	negative	-	-	-
257	female	47	negative	negative	-	-	-
258	female	40	negative	negative	-	-	-
259	male	68	negative	negative	-	-	-
260	female	44	negative	negative	-	-	-
261	female	27	negative	negative	-	-	-
262	female	42	negative	negative	-	-	-
263	male	3	negative	negative	-	-	-
264	female	36	negative	negative	-	-	-
265	female	55	negative	negative	-	-	-
266	female	48	negative	negative	-	-	-
267	male	18	negative	negative	-	-	-
268	female	19	negative	negative	-	-	-
269	female	23	negative	negative	-	-	-
270	male	18	negative	negative	-	-	-
271	male	22	negative	negative	-	-	-

272	male	53	negative	negative	-	-	-
273	female	32	negative	negative	-	-	-
274	male	25	negative	negative	-	-	-
275	male	53	negative	negative	-	-	-
276	male	28	negative	negative	-	-	-
277	female	50	negative	negative	-	-	-
278	female	27	negative	negative	-	-	-
279	male	27	negative	negative	-	-	-
280	female	51	negative	negative	-	-	-
281	female	27	negative	negative	-	-	-
282	female	27	negative	negative	-	-	-
283	female	50	negative	negative	-	-	-
284	female	32	negative	negative	-	-	-
285	male	22	negative	negative	-	-	-
286	male	28	negative	negative	-	-	-
287	female	27	negative	negative	-	-	-
288	male	23	negative	negative	-	-	-
289	female	32	negative	negative	-	-	-
290	female	42	negative	negative	-	-	-
291	male	41	negative	negative	-	-	-
292	female	36	negative	negative	-	-	-
293	female	80	negative	negative	-	-	-
294	female	25	negative	negative	-	-	-
295	female	23	negative	negative	-	-	-
296	female	25	negative	negative	-	-	-
297	female	24	negative	negative	-	-	-
298	female	21	negative	negative	-	-	-
299	female	26	negative	negative	-	-	-
300	male	36	negative	negative	-	-	-
301	female	36	negative	negative	-	-	-
302	male	36	negative	negative	-	-	-
303	male	41	negative	negative	-	-	-
304	male	29	negative	negative	-	-	-
305	female	37	negative	negative	-	-	-
306	female	31	negative	negative	-	-	-
307	male	33	negative	negative	-	-	-
308	female	26	negative	negative	-	-	-
309	male	38	negative	negative	-	-	-
310	female	30	negative	negative	-	-	-

311	female	22	negative	negative	-	-	-
312	female	68	negative	negative	-	-	-
313	female	24	negative	negative	-	-	-
314	female	20	negative	negative	-	-	-

Table 2: Test result overview for SARS-CoV-2 negative samples. Test results marked red are false-positive results.

Of 314 total samples analysed as SARS-CoV-2 negative by qRT-PCR, 4 were false-positive in the index test. All other analysed samples were correctly identified as negative.

11.3 Summary of performance

Table 3 illustrates all test results summarised in a 2x2 matrix:

		Reference test		Total
		Positive (+)	Negative (-)	
Index test	Positive (+)	126	4	130
	Negative (-)	6	310	316
Total		132	314	446

Table 3: Matrix showing agreement and disagreement between reference test and index test results.

Positive percent agreement (PPA) = 95.5% (90.4% - 97.9%)

Negative percent agreement (NPA) = 98.7% (96.8% - 99.5%)

Overall Percent Agreement (OPA) = 97.8% (95.9% - 98.8%)

11.4 Potentially interfering and cross-reactive samples (60 cases)

60 samples spiked with Influenza A, Influenza B, RSV, Parainfluenza, Coronavirus 229E, and Coronavirus NL64 were used in this study. Test results, together with antigen concentrations, are summarised in Table 4.



Matrix	Virus	Index test result
Nasal swab sample spiked with SARS-CoV-2 antigen solution (positive control)	SARS-CoV2 NC Antigen original	positive
Nasal swab sample spiked with virus	Corona 229E 1:10	negative
Nasal swab sample spiked with virus	Corona NL64 1:10	negative
Nasal swab sample spiked with virus	H1N1-S51 1:100	negative
Nasal swab sample spiked with virus	H1N1-S51 1:100	negative
Nasal swab sample spiked with virus	H1N1-S51 1:50	negative
Nasal swab sample spiked with virus	H1N1-S51 1:50	negative
Nasal swab sample spiked with virus	H1N1-S52 1:100	negative
Nasal swab sample spiked with virus	H1N1-S52 1:50	negative
Nasal swab sample spiked with virus	H1N1-S53 1:100	negative
Nasal swab sample spiked with virus	H1N1-S53 1:50	negative
Nasal swab sample spiked with virus	H3N5 β-PL-EBEAM-1:100	negative
Nasal swab sample spiked with virus	H3N5 β-PL-EBEAM-1:100	negative
Nasal swab sample spiked with virus	H3N5 β-PL-EBEAM-1:50	negative
Nasal swab sample spiked with virus	H3N5 β-PL-EBEAM-1:50	negative
Nasal swab sample spiked with virus	H3N8 EBEAM 1:100	negative
Nasal swab sample spiked with virus	H3N8 EBEAM 1:100	negative
Nasal swab sample spiked with virus	H3N8 EBEAM 1:50	negative
Nasal swab sample spiked with virus	H3N8 EBEAM 1:50	negative
Nasal swab sample spiked with virus	Influ A-heat-1:100	negative
Nasal swab sample spiked with virus	Influ A-heat-1:100	negative
Nasal swab sample spiked with virus	Influ A-heat-1:50	negative
Nasal swab sample spiked with virus	Influ A-heat-1:50	negative
Nasal swab sample spiked with virus	Influenza B 1:10	negative
Nasal swab sample spiked with virus	Parainfluenza Type 2 1:10	negative
Nasal swab sample spiked with virus	RSV B 1:10	negative
Nasal swab sample spiked with virus	RSV-A EBEAM 1:100	negative
Nasal swab sample spiked with virus	RSV-A EBEAM 1:100	negative
Nasal swab sample spiked with virus	RSV-A EBEAM 1:50	negative
Nasal swab sample spiked with virus	RSV-A EBEAM 1:50	negative
Nasal swab sample spiked with virus	RSV-A heat 1:100	negative
Nasal swab sample spiked with virus	RSV-A heat 1:100	negative
Nasal swab sample spiked with virus	RSV-A heat 1:50	negative
Nasal swab sample spiked with virus	RSV-A heat 1:50	negative
Nasal swab sample spiked with virus	RSV-A2 heat 1:100	negative
Nasal swab sample spiked with virus	RSV-A2 heat 1:100	negative

Nasal swab sample spiked with virus	RSV-A2 heat 1:50	negative
Nasal swab sample spiked with virus	RSV-A2 heat 1:50	negative
Unused swab spiked with SARS-CoV-2 antigen solution (positive control)	SARS-CoV2 NC Antigen original	positive
Unused swab spiked with virus	Corona 229E original	negative
Unused swab spiked with virus	Corona NL64 original	negative
Unused swab spiked with virus	H1N1-S51 1:100	negative
Unused swab spiked with virus	H1N1-S51 1:50	negative
Unused swab spiked with virus	H1N1-S52 1:100	negative
Unused swab spiked with virus	H1N1-S52 1:50	negative
Unused swab spiked with virus	H1N1-S53 1:100	negative
Unused swab spiked with virus	H1N1-S53 1:50	negative
Unused swab spiked with virus	H3N5 β -PL-EBEAM-1:100	negative
Unused swab spiked with virus	H3N5 β -PL-EBEAM-1:50	negative
Unused swab spiked with virus	H3N8 EBEAM 1:100	negative
Unused swab spiked with virus	H3N8 EBEAM 1:50	negative
Unused swab spiked with virus	Influ A-heat-1:100	negative
Unused swab spiked with virus	Influ A-heat-1:50	negative
Unused swab spiked with virus	Influenza B original	negative
Unused swab spiked with virus	Parainfluenza Type 2 original	negative
Unused swab spiked with virus	RSV B original	negative
Unused swab spiked with virus	RSV-A EBEAM 1:100	negative
Unused swab spiked with virus	RSV-A EBEAM 1:50	negative
Unused swab spiked with virus	RSV-A heat 1:100	negative
Unused swab spiked with virus	RSV-A heat 1:50	negative
Unused swab spiked with virus	RSV-A2 heat 1:100	negative
Unused swab spiked with virus	RSV-A2 heat 1:50	negative

Table 4: Test result overview of spiked samples positive for potentially cross-reacting viruses. Virus particles were partly non-treated, partly heat-inactivated (indicated 'heat'), and partly inactivated by electron beam (indicated 'EBEAM')

Only the positive controls (SARS-CoV-2 antigen solution) lead to positive index test results. All other samples tested negative. The test results indicate that common potential cross-reactants do not lead to false-positive results of the index test.

12 Conclusion

In the study summarised in this report, SARS-CoV-2 Antigen Detection Kit (Colloidal Gold Method) for layperson use by NINGBO LVTANG BIOTECHNOLOGY CO., LTD. was tested for performance when compared to a CE-certified qRT-PCR kit (virellaSARS-CoV-2 seqc real time RT-PCR Kit) by gerbion GmbH & Co. KG.

The positive (PPA), negative (NPA), and overall percent agreement (OPA) of the index test with the reference test was evaluated using 132 SARS-CoV-2 positive samples and 314 SARS-CoV-2 negative samples. PPA was calculated to be 95.5% (95%CI: 90.4% to 97.9%). NPA was calculated to be 98.7% (95%CI: 96.8% to 99.5%). OPA was calculated to be 97.8% (95%CI: 95.9% to 98.8%).

PPA of index test and reference test was independent of the detected variant of SARS-CoV-2. The index test was able to detect both Omicron sub-variant BA.1 and BA.2.

Additionally, 60 samples that were spiked with antigen of common non-SARS-CoV-2 respiratory pathogens (Influenza A, Influenza B, RSV, Parainfluenza, Coronavirus 229E, and Coronavirus NL64) were tested to assess susceptibility of the index test for cross-reactivity. All samples were correctly identified as negative. Specificity of the index test towards potentially cross-reacting SARS-CoV-2 negative samples was calculated to be 100% (95%CI: 94.0% to 100%).

These results suggest that the index test SARS-CoV-2 Antigen Detection Kit (Colloidal Gold Method) for layperson use by NINGBO LVTANG BIOTECHNOLOGY CO., LTD. can be used for the qualitative detection of SARS-CoV-2 antigen in human nasal swabs with high sensitivity and specificity.

In consideration of the low time and cost requirements as well as the simplicity of the index test conduct compared to qRT-PCR testing, the index test is likely to be highly usable as point-of-care and self-testing device.

Raw data table of clinical performance study for SARS-CoV-2 Antigen Rapid Detection Kit (Colloidal Gold Method) for layperson use by Ningbo Lvtang Biotechnology Co., Ltd.

Internal project number: 220141T

Date: 13.04.2022

Sample information			Donor information					Sample analysis							
Number	ID	Country of origin	gender (male / female)	age (in years)	Ethnical group	Current symptoms	Date of swab sampling (DD.MM.YY)	Index test result	PCR result	RdRpS	IFC	SC	E-Gene	Mutation	
1	I100612835	Germany	female	22	asian	none	2022/4/3	negative	negative	-	30.03	28.69	-	-	
2	I100612836	Germany	female	68	asian	none	2022/4/3	negative	negative	-	29.88	26.92	-	-	
3	I100612837	Germany	female	24	asian	none	2022/4/3	negative	negative	-	29.88	26.92	-	-	
4	I100612889	Germany	male	18	european	none	2022/4/1	negative	negative	-	29.44	24.89	-	-	
5	I100612890	Germany	female	19	european	none	2022/4/1	negative	negative	-	28.8	23.97	-	-	
6	I100612891	Germany	female	23	asian	none	2022/4/1	negative	negative	-	28.8	23.97	-	-	
7	I100612892	Germany	male	18	european	cough (11.03.2022)	2022/4/1	negative	negative	-	28.8	23.97	-	-	
8	I100612893	Germany	male	22	european, african	none	2022/4/1	negative	negative	-	28.8	23.97	-	-	
9	I100612894	Germany	male	53	european	none	2022/4/2	negative	negative	-	29.8	24.38	-	-	
10	I100612895	Germany	female	32	european	none	2022/4/5	negative	negative	-	29.8	24.38	-	-	
11	I100612896	Germany	male	25	european	none	2022/4/5	negative	negative	-	29.8	24.38	-	-	
12	I100612897	Germany	male	53	asian	none	2022/4/4	negative	negative	-	30.74	27.98	-	-	
13	I100612898	Germany	male	28	asian	none	2022/4/4	negative	negative	-	30.74	27.98	-	-	
14	I100612899	Germany	female	50	asian	none	2022/4/4	negative	negative	-	30.74	27.98	-	-	
15	I100612900	Germany	female	27	european	none	2022/4/2	negative	negative	-	28.85	25.34	-	-	
16	I100612901	Germany	male	27	european	none	2022/4/2	negative	negative	-	28.85	25.34	-	-	
17	I100612902	Germany	female	51	european	none	2022/4/2	negative	negative	-	28.85	25.34	-	-	
18	I100612903	Germany	female	27	european	none	2022/4/2	negative	negative	-	28.85	25.34	-	-	
19	I100612904	Germany	female	27	european	none	2022/4/2	negative	negative	-	29.15	25.67	-	-	
20	I100612905	Germany	female	50	-	none	2022/4/2	negative	negative	-	27.62	23.58	-	-	
21	I100612906	Germany	female	32	european	rhinitis	2022/4/2	negative	negative	-	27.62	23.58	-	-	
22	I100612907	Germany	male	22	european	rhinitis, hay fever	2022/4/2	negative	negative	-	27.62	23.58	-	-	
23	I100612908	Germany	male	28	european	none	2022/4/2	negative	negative	-	27.62	23.58	-	-	
24	I100612909	Germany	female	27	european	none	2022/4/2	negative	negative	-	29.44	24.89	-	-	
25	I100612910	Germany	male	23	american	none	2022/4/2	negative	negative	-	29.44	24.89	-	-	
26	I100612911	Germany	female	32	european	none	2022/4/2	negative	negative	-	29.44	24.89	-	-	
27	I100612912	Germany	female	42	asian	none	2022/4/3	negative	negative	-	29.15	25.67	-	-	
28	I100612913	Germany	male	41	european	none	2022/4/3	negative	negative	-	29.15	25.67	-	-	
29	I100612914	Germany	female	36	european	sore throat (02.04.2022)	2022/4/3	negative	negative	-	29.15	25.67	-	-	
30	I100612915	Germany	female	80	european	none	2022/4/3	negative	negative	-	30.1	26.71	-	-	
31	I100612916	Germany	female	25	european	none	2022/4/3	negative	negative	-	29.99	22.97	-	-	
32	I100612917	Germany	female	23	european	none	2022/4/3	negative	negative	-	30.06	25.58	-	-	
33	I100612920	Germany	female	25	european	none	2022/4/3	negative	negative	-	29.1	24.95	-	-	
34	I100612921	Germany	female	24	european	none	2022/4/3	negative	negative	-	29.1	24.95	-	-	
35	I100612922	Germany	female	21	asian	none	2022/4/3	negative	negative	-	29.1	24.95	-	-	
36	I100612923	Germany	female	26	asian	none	2022/4/3	negative	negative	-	29.1	24.95	-	-	
37	I100612924	Germany	male	36	asian	none	2022/4/3	negative	negative	-	28.84	24.51	-	-	
38	I100612925	Germany	female	36	asian	none	2022/4/3	negative	negative	-	28.84	24.51	-	-	
39	I100612926	Germany	male	36	asian	none	2022/4/3	negative	negative	-	28.84	24.51	-	-	
40	I100612927	Germany	male	41	asian	none	2022/4/3	negative	negative	-	28.84	24.51	-	-	
41	I100612928	Germany	male	29	asian	none	2022/4/3	negative	negative	-	29.69	25.63	-	-	
42	I100612929	Germany	female	37	asian	none	2022/4/3	negative	negative	-	29.69	25.63	-	-	
43	I100612930	Germany	female	31	asian	none	2022/4/3	negative	negative	-	29.69	25.63	-	-	
44	I100612931	Germany	male	33	asian	none	2022/4/3	negative	negative	-	29.69	25.63	-	-	
45	I100612932	Germany	female	26	asian	none	2022/4/3	negative	negative	-	30.03	28.69	-	-	
46	I100612933	Germany	male	38	asian	none	2022/4/3	negative	negative	-	30.03	28.69	-	-	
47	I100612934	Germany	female	30	asian	none	2022/4/3	negative	negative	-	30.03	28.69	-	-	
48	I100612938	Germany	female	20	asian	none	2022/4/3	negative	negative	-	29.88	26.92	-	-	
49	I100614283	Germany	female	51	european	rhinitis (03.2022), rhinitis (23.03.2022)	2022/3/24	positive	positive	27	29.12	23.51	25.01	-	
50	I100614284	Germany	female	35	european	rhinitis (19.03.2022), rhinitis (24.03.2022)	2022/3/24	positive	positive	36.73	29.95	22.02	33.03	-	
51	I100614285	Germany	female	45	european	rhinitis (21.03.2022), diarrhea (21.03.2022)	2022/3/24	positive	positive	24.82	28.23	22.73	22.39	-	
52	I100614286	Germany	male	56	european	throat (28.03.2022), pain (28.03.2022)	2022/3/29	positive	positive	29.55	28.87	24.06	26.69	-	
53	I100614287	Germany	female	19	european	rhinitis (28.03.2022), rhinitis (29.03.2022)	2022/3/29	positive	positive	22.71	29.07	23.56	22.43	-	
54	I100614288	Germany	male	43	european	none	2022/3/28	positive	positive	22.51	28.4	23.65	21.34	-	
55	I100614289	Germany	female	54	european	pharyngitis, sore throat, rhinitis, fatigue	2022/3/29	positive	positive	21.34	28.26	23.48	20.07	-	
56	I100614290	Germany	female	63	european	taste impairment (28.03.2022)	2022/3/29	positive	positive	22.37	28.52	23.75	21.32	-	
57	I100614291	Germany	female	21	european	rhinitis (03.2022), sore throat (27.03.2022)	2022/3/29	positive	positive	26.46	29.64	25.62	25.99	-	
58	I100614292	Germany	female	18	european	fatigue during stress (27.03.2022)	2022/3/29	positive	negative	-	29.22	24.5	-	-	
59	I100614293	Germany	female	35	european	rhinitis (24.03.2022), breathlessness (24.03.2022)	2022/3/25	positive	positive	26.15	29.36	23.15	24.93	-	
60	I100614294	Germany	female	27	european	rhinitis (28.03.2022), rhinitis (28.03.2022)	2022/3/29	positive	positive	28.65	28.58	24.08	26.35	-	
61	I100614296	Germany	male	55	european	rhinitis (26.03.2022), rhinitis (21.03.2022)	2022/3/28	positive	positive	22.15	30.39	22.96	19.35	-	
62	I100614297	Germany	male	76	european	none	2022/3/28	positive	positive	24.84	31.51	23.88	22.53	-	
63	I100614298	Germany	female	65	european	fever (27.03.2022)	2022/3/28	positive	positive	21.53	30.32	22.73	19.4	-	
64	I100614299	Germany	male	36	european	cough (27.03.2022), rhinitis (27.03.2022)	2022/3/28	positive	positive	22.03	32.25	23.17	19.53	-	
65	I100614300	Germany	male	49	european	rhinitis (27.03.2022), rhinitis (26.03.2022)	2022/3/28	positive	positive	22.85	30.13	21.29	20.81	-	
66	I100614301	Germany	female	26	european	rhinitis (25.03.2022), rhinitis (24.03.2022)	2022/3/28	positive	positive	25.07	30.21	22.72	23.06	-	
67	I100614302	Germany	female	37	european	rhinitis (24.03.2022), rhinitis (24.03.2022)	2022/3/28	positive	positive	25.21	28.89	19.94	22.38	-	
68	I100614303	Germany	male	30	european	rhinitis (28.03.2022), rhinitis (28.03.2022)	2022/3/28	positive	positive	21.89	31.36	21.37	19.48	-	
69	I100614304	Germany	female	54	-	rhinitis (23.03.2022), rhinitis (23.03.2022)	2022/3/25	positive	positive	27.96	29.09	23	25.21	-	
70	I100614305	Germany	male	39	european	rhinitis (23.03.2022)	2022/3/25	positive	positive	22.16	28.11	24.14	20.78	-	
71	I100614306	Germany	female	46	european	sore throat (24.03.2022), rhinitis (24.03.2022)	2022/3/25	positive	positive	21.6	42.88	23.76	19.51	-	
72	I100614307	Germany	female	58	european	sore throat (24.03.2022), rhinitis (24.03.2022)	2022/3/25	positive	positive	24.36	27.69	23.67	22.79	-	
73	I100614308	Germany	male	59	european	sore throat (23.03.2022), rhinitis (23.03.2022)	2022/3/25	positive	positive	25.07	28.15	23.01	22.53	-	
74	I100614309	Germany	female	34	european	rhinitis (23.03.2022), rhinitis (23.03.2022)	2022/3/24	positive	positive	18.88	39.27	22.44	17.07	-	
75	I100614310	Germany	male	31	european	sore throat (23.03.2022), rhinitis (23.03.2022)	2022/3/24	positive	positive	25.67	33.57	23.21	23.45	-	
76	I100614311	Germany	male	53	european	cough (23.03.2022), rhinitis (23.03.2022)	2022/3/24	positive	positive	24.23	28.65	23.23	21.92	-	
77	I100614312	Germany	female	43	european	sore throat (24.03.2022), rhinitis (24.03.2022)	2022/3/24	positive	positive	32.46	29.61	24.01	29.82	-	
78	I100614313	Germany	female	38	european	fatigue during stress (29.03.2022)	2022/3/29	positive	positive	23.43	29.13	23.52	22.41	-	
79	I100614314	Germany	female	31	european	rhinitis, nausea, circulatory problems (8.03.2022), sore throat (28.03.2022)	2022/3/29	positive	positive	33.85	29.44	24.97	29.89	-	
80	I100614315	Germany	male	24	european	none	2022/3/29	positive	positive	26.07	29.24	25.77	25.74	-	
81	I100614383	Germany	male	48	european	none	2022/4/3	negative	negative	-	30.21	25.53	-	-	
82	I100614384	Germany	female	58	european	none	2022/3/29	negative	negative	-	29.39	22.45	-	-	
83	I100614385	Germany	female	35	european	none	2022/3/29	negative	negative	-	30.33	26.86	-	-	
84	I100614386	Germany	female	23	european	none	2022/3/25	negative	negative	-	29.16	23.19	-	-	
85	I100614387	Germany	male	39	european	none	2022/3/29	negative	negative	-	30.45	26.02	-	-	
86	I100614388	Germany	female	43	european	none	2022/3/29	negative	negative	-	30.48	23.64	-	-	
87	I100614390	Germany	female	35	european	none	2022/3/30	negative	negative	-	28.82	23.84	-	-	
88	I100614391	Germany	female	47	european	none	2022/3/30	negative	negative	-	28.87	24.59	-	-	
89	I100614392	Germany	female	43	european	none	2022/3/30	negative	negative	-	30.77	24.26	-	-	
90	I100614394	Germany	male	31	european	rhinitis (23.03.2022)	2022/3/25	negative	negative	-	29.85	27.46	-	-	
91	I100614395	Germany	female	44	european	none	2022/3/29	negative	negative	-	30.22	25.1	-	-	
92	I100614396	Germany	male	33	european	none	2022/4/6	negative	negative	-	30.1	25.2	-	-	
93	I100614397	Germany	female	50	european	fatigue during stress (11.03.2022)	2022/3/26	negative	negative	-	28.54				

111	I100614418	Germany	female	62	European	none		2022/3/29	negative	negative	-	30.38	23.33	-	-	
112	I100614419	Germany	female	38	European	none		2022/3/25	negative	negative	-	29.35	25.01	-	-	
113	I100614420	Germany	male	40	European	none		2022/3/25	negative	negative	-	29.38	25.18	-	-	
114	I100614423	Germany	female	52	European	breathlessness during stress		2022/3/30	negative	negative	-	28.91	22.52	-	-	
115	I100614424	Germany	female	45	European	none		2022/3/30	negative	negative	-	28.82	21.69	-	-	
116	I100614425	Germany	female	42	European	taste impairment (autumn		2022/3/29	negative	negative	-	29.7	22.84	-	-	
117	I100614426	Germany	male	61	European	none		2022/3/30	negative	negative	-	28.16	22.85	-	-	
118	I100614427	Germany	female	44	European	none		2022/3/30	negative	negative	-	28.95	22.75	-	-	
119	I100614428	Germany	female	33	European	none		2022/3/30	negative	negative	-	30.24	21.71	-	-	
120	I100614429	Germany	female	61	European	none		2022/3/30	negative	negative	-	28.73	22.72	-	-	
121	I100614430	Germany	female	52	European	none		2022/3/30	negative	negative	-	30.07	21.7	-	-	
122	I100614431	Germany	male	57	European	none		2022/3/30	negative	negative	-	28.44	22.96	-	-	
123	I100614432	Germany	female	45	European	none		2022/3/30	negative	negative	-	29.34	22.7	-	-	
124	I100617147	Germany	female	34	European	none		2022/3/31	negative	negative	-	30.41	24.61	-	-	
125	I100617148	Germany	female	35	European	none		2022/3/31	negative	negative	-	28.67	19.87	-	-	
126	I100617149	Germany	female	45	European	none		2022/4/6	negative	negative	-	29.14	24.09	-	-	
127	I100617150	Germany	female	40	European	none		2022/4/6	negative	negative	-	29.7	23.04	-	-	
128	I100617151	Germany	female	52	European	cough		2022/4/6	positive	positive	29.22	30.27	23.11	26.16	-	-
129	I100617153	Germany	male	70	European	none		2022/4/6	negative	negative	-	29.57	24.02	-	-	
130	I100617154	Germany	female	22	European	sore throat (07.04.2022)		2022/4/6	negative	negative	-	30.26	23.72	-	-	
131	I100617155	Germany	female	58	European	none		2022/4/1	negative	negative	-	28.81	20.65	-	-	
132	I100617156	Germany	male	73	European	none		2022/4/1	negative	negative	-	28.45	19.97	-	-	
133	I100617157	Germany	female	69	European	none		2022/4/1	negative	negative	-	27.62	19.68	-	-	
134	I100617158	Germany	male	55	European	none		2022/4/6	negative	negative	-	30.19	24.35	-	-	
135	I100617159	Germany	female	36	European	none		2022/4/1	negative	negative	-	28.55	20.17	-	-	
136	I100617160	Germany	male	65	European	none		2022/4/6	negative	negative	-	29.51	24.62	-	-	
137	I100617161	Germany	female	51	European	none		2022/4/6	negative	negative	-	29.68	24.46	-	-	
138	I100617162	Germany	female	53	European	none		2022/4/6	negative	negative	-	29.92	24.97	-	-	
139	I100617163	Germany	female	42	European	rhinitis		2022/4/8	negative	negative	-	28.3	27.46	-	-	
140	I100617164	Germany	female	61	European	(29.03.2022), rhinitis (26.03.2022)		2022/4/8	negative	negative	-	32.96	26.19	-	-	
141	I100617165	Germany	male	21	European	none		2022/4/8	negative	negative	-	32.85	27.3	-	-	
142	I100617166	Germany	male	69	European	none		2022/4/8	negative	negative	-	28.75	25.87	-	-	
143	I100617167	Germany	female	53	European	none		2022/4/8	negative	negative	-	27.29	23.33	-	-	
144	I100617168	Germany	male	23	European	none		2022/4/8	negative	negative	-	28.85	25.68	-	-	
145	I100617169	Germany	female	49	European	none		2022/4/6	negative	negative	-	31.02	23.02	-	-	
146	I100617170	Germany	female	21	European	none		2022/4/8	negative	negative	-	27.85	24.99	-	-	
147	I100617171	Germany	female	43	European	none		2022/4/8	negative	negative	-	27.71	23.74	-	-	
148	I100617172	Germany	male	21	European	none		2022/4/8	negative	negative	-	27.29	23.95	-	-	
149	I100617173	Germany	male	21	European	none		2022/4/8	negative	negative	-	33.48	26.99	-	-	
150	I100617175	Germany	female	64	European	none		2022/4/8	negative	negative	-	28.49	26.47	-	-	
151	I100617176	Germany	female	63	European	none		2022/4/8	negative	negative	-	27.88	25.79	-	-	
152	I100617177	Germany	female	31	European	rhinitis		2022/4/8	negative	negative	-	27.94	23.92	-	-	
153	I100617178	Germany	female	31	European	none		2022/4/8	negative	negative	-	28.05	27.58	-	-	
154	I100617179	Germany	female	33	European	none		2022/4/6	negative	negative	-	30	25.96	-	-	
155	I100617180	Germany	male	40	European	none		2022/4/6	negative	negative	-	29.46	23.29	-	-	
156	I100617181	Germany	male	63	European	none		2022/4/6	negative	negative	-	29.56	25.62	-	-	
157	I100617182	Germany	female	48	European	none		2022/4/6	negative	negative	-	30.11	24.55	-	-	
158	I100617183	Germany	male	48	European	none		2022/4/8	negative	negative	-	27.72	23.74	-	-	
159	I100617184	Germany	female	47	European	none		2022/4/6	negative	negative	-	29.8	24.36	-	-	
160	I100617185	Germany	male	20	European	none		2022/4/8	negative	negative	-	32.54	25.15	-	-	
161	I100617189	Germany	female	49	European	none		2022/4/8	negative	negative	-	28.23	25.97	-	-	
162	I100617190	Germany	female	34	European	none		2022/4/8	negative	negative	-	27.84	23.93	-	-	
163	I100617191	Germany	male	34	European	none		2022/4/8	negative	negative	-	27.22	22.84	-	-	
164	I100617193	Germany	female	49	European	none		2022/4/6	negative	negative	-	30.55	22.76	-	-	
165	I100617194	Germany	male	60	European	none		2022/4/8	negative	negative	-	28.37	26.56	-	-	
166	I100617195	Germany	male	25	European	03.04.2022), diarrhea (03.04.2022)		2022/4/8	negative	negative	-	33.53	27.79	-	-	
167	I100617196	Germany	male	54	European	none		2022/4/8	negative	negative	-	27.45	23.48	-	-	
168	I100618243	Germany	female	26	-	-	-	-	negative	negative	-	28.29	22.53	-	-	
169	I100618244	Germany	female	56	-	-	-	-	negative	negative	-	28.29	22.53	-	-	
170	I100618245	Germany	female	25	-	-	-	-	negative	negative	-	28.08	22.42	-	-	
171	I100618246	Germany	female	43	-	-	-	-	negative	negative	-	28.08	22.42	-	-	
172	I100618247	Germany	male	49	-	-	-	-	negative	negative	-	28.08	22.42	-	-	
173	I100618248	Germany	female	53	-	-	-	-	negative	negative	-	28.08	22.42	-	-	
174	I100618249	Germany	female	57	-	-	-	-	negative	negative	-	28.5	23.32	-	-	
175	I100618250	Germany	female	19	-	-	-	-	negative	negative	-	28.5	23.32	-	-	
176	I100618251	Germany	female	34	-	-	-	-	negative	negative	-	28.5	23.32	-	-	
177	I100618252	Germany	female	35	-	-	-	-	negative	negative	-	28.5	23.32	-	-	
178	I100618253	Germany	female	41	-	-	-	-	negative	negative	-	27.97	23.49	-	-	
179	I100618254	Germany	female	39	-	-	-	-	negative	negative	-	27.97	23.49	-	-	
180	I100618255	Germany	male	28	-	-	-	-	negative	negative	-	27.97	23.49	-	-	
181	I100618256	Germany	male	25	-	-	-	-	negative	negative	-	27.97	23.49	-	-	
182	I100618257	Germany	female	50	-	-	-	-	negative	negative	-	28.49	22.74	-	-	
183	I100618258	Germany	female	60	-	-	-	-	negative	negative	-	28.49	22.74	-	-	
184	I100618259	Germany	male	23	-	-	-	-	negative	negative	-	28.49	22.74	-	-	
185	I100618260	Germany	male	29	-	-	-	-	negative	negative	-	28.49	22.74	-	-	
186	I100618261	Germany	male	59	-	-	-	-	negative	negative	-	28.33	21.6	-	-	
187	I100618262	Germany	male	32	-	-	-	-	negative	negative	-	28.33	21.6	-	-	
188	I100618263	Germany	female	35	-	-	-	-	negative	negative	-	28.33	21.6	-	-	
189	I100618264	Germany	male	19	-	-	-	-	negative	negative	-	28.7	22.05	-	-	
190	I100618265	Germany	male	30	-	-	-	-	negative	negative	-	28.47	22.89	-	-	
191	I100618267	Germany	female	20	-	-	-	-	negative	negative	-	28.47	22.89	-	-	
192	I100618268	Germany	male	37	-	-	-	-	negative	negative	-	28.47	22.89	-	-	
193	I100618269	Germany	female	32	-	-	-	-	negative	negative	-	28.99	26.31	-	-	
194	I100618270	Germany	female	45	-	-	-	-	negative	negative	-	28.99	26.31	-	-	
195	I100618271	Germany	female	41	-	-	-	-	negative	negative	-	28.99	26.31	-	-	
196	I100618272	Germany	male	49	-	-	-	-	negative	negative	-	28.99	26.31	-	-	
197	I100618273	Germany	male	18	-	-	-	-	negative	negative	-	28.75	26.89	-	-	
198	I100618274	Germany	male	23	-	-	-	-	negative	negative	-	28.75	26.89	-	-	
199	I100618275	Germany	male	70	-	-	-	-	negative	negative	-	28.75	26.89	-	-	
200	I100618276	Germany	male	23	-	-	-	-	negative	negative	-	28.75	26.89	-	-	
201	I100618280	Germany	male	34	-	-	-	-	positive	positive	26.8	28.21	23.4	26.15	-	-
202	I100618281	Germany	female	45	-	-	-	-	negative	negative	-	28.49	24.79	-	-	
203	I100618282	Germany	female	33	-	-	-	-	negative	negative	-	28.49	24.79	-	-	
204	I100618283	Germany	female	24	-	-	-	-	negative	negative	-	28.49	24.79	-	-	
205	I100618284	Germany	female	37	-	-	-	-	negative	negative	-	28.49	24.79	-	-	
206	I100618285	Germany	female	40	-	-	-	-	negative	negative	-	28.52	26.3	-	-	
207	I100618286	Germany	male	48	-	-	-	-	negative	negative	-	28.52	26.3	-	-	
208	I100618287	Germany	female	24	-	-	-	-	negative	negative	-	28.52	26.3	-	-	
209	I100618288	Germany	male	28	-	-	-	-	negative	negative	-	28.52	26.3	-	-	
210	I100618289	Germany	male	33	-	-	-	-	negative	negative	-	28.63	25.5	-	-	
211	I100618290	Germany	male	28	-	-	-	-	negative	negative	-	28.63	25.5	-	-	
212	I100618291	Germany	female	24	-	-	-	-	negative	negative	-	28.63	25.5	-	-	
213	I100618292	Germany	female	20	-	-	-	-	negative	negative	-	28.63	25.5	-	-	
214	I100618496	Germany	female	42	European	none		2022/4/6	negative	negative	-	-	-	-	-	

243	I100618604	Germany	male	56	European	none	2022/4/7	negative	negative	-	29.78	26.86	-	-
244	I100618605	Germany	female	51	European	none	2022/4/8	negative	negative	-	27.55	23.78	-	-
245	I100618606	Germany	female	26	European	none	2022/4/8	negative	negative	-	27.52	21.18	-	-
246	I100618607	Germany	female	63	European	none	2022/4/8	negative	negative	-	28.74	25.05	-	-
247	I100618608	Germany	male	44	-	-	-	negative	negative	-	28.7	22.05	-	-
248	I100618609	Germany	male	57	-	-	-	negative	negative	-	29.36	21.23	-	-
249	I100618610	Germany	female	21	-	-	-	negative	negative	-	28.68	19.81	-	-
250	I100618611	Germany	female	19	-	-	-	negative	negative	-	28.41	21.15	-	-
251	I100618613	Germany	male	32	-	-	-	negative	negative	-	28.7	22.05	-	-
252	I100618615	Germany	female	23	-	-	-	negative	negative	-	28.24	21.63	-	-
253	I100618616	Germany	male	29	-	-	-	negative	negative	-	28.24	21.63	-	-
254	I100618617	Germany	female	18	-	-	-	negative	negative	-	29.36	21.23	-	-
255	I100618618	Germany	female	20	-	-	-	negative	negative	-	28.68	19.81	-	-
256	I100618620	Germany	female	18	European	none	2022/4/8	negative	negative	-	28.13	24.39	-	-
257	I100618621	Germany	male	22	European	none	2022/4/8	negative	negative	-	32.49	24.68	-	-
258	I100618622	Germany	female	18	-	-	-	negative	negative	-	28.24	21.63	-	-
259	I100618624	Germany	female	26	European	none	2022/4/8	negative	negative	-	27.66	25.44	-	-
260	I100618625	Germany	male	50	European	none	2022/4/8	negative	negative	-	27.37	22.35	-	-
261	I100618626	Germany	female	39	Caribbean	none	2022/4/8	negative	negative	-	28.14	26.45	-	-
262	I100618628	Germany	male	22	-	-	-	negative	negative	-	28.41	21.15	-	-
263	I100618629	Germany	female	29	European	none	2022/4/8	negative	negative	-	28.56	24.65	-	-
264	I100618630	Germany	male	55	European	none	2022/4/8	negative	negative	-	27.74	24.88	-	-
265	I100618631	Germany	female	44	European	none	2022/4/9	negative	negative	-	32.79	26.72	-	-
266	I100618632	Germany	female	20	European	none	2022/4/8	negative	negative	-	23.23	27.17	-	-
267	I100618635	Germany	female	69	European	rhinitis (since 17.03.2022)	2022/4/7	negative	negative	-	28.46	26.21	-	-
268	I100618638	Germany	female	21	-	-	-	negative	negative	-	28.24	21.63	-	-
269	I100618642	Germany	male	51	European	none	2022/4/8	negative	negative	-	28.33	24.87	-	-
270	I100618643	Germany	female	20	-	-	-	negative	negative	-	28.41	21.15	-	-
271	I100618644	Germany	female	18	-	-	-	negative	negative	-	28.68	19.81	-	-
272	I100618645	Germany	female	19	-	-	-	negative	negative	-	28.41	21.15	-	-
273	I100618646	Germany	male	45	European	none	2022/4/8	negative	negative	-	28.24	24.27	-	-
274	I100618647	Germany	female	20	European	rhinitis	2022/4/8	negative	negative	-	27.36	21.59	-	-
275	I100618648	Germany	female	45	European	none	2022/4/8	negative	negative	-	26.97	23.59	-	-
276	I100618650	Germany	male	52	European	none	2022/4/8	negative	negative	-	26.98	26.48	-	-
277	I100618652	Germany	female	20	European	none	2022/4/8	negative	negative	-	32.48	24.64	-	-
278	I100618653	Germany	male	21	Asian	none	2022/4/8	negative	negative	-	28.19	24.36	-	-
279	I100618656	Germany	male	70	European	none	2022/4/8	negative	negative	-	27.35	23.46	-	-
280	I100618658	Germany	female	34	European	none	2022/4/8	negative	negative	-	27.67	23.43	-	-
281	I100618659	Germany	female	20	-	-	-	negative	negative	-	28.41	21.15	-	-
282	I100618660	Germany	female	41	European	none	2022/4/8	negative	negative	-	28.33	24.91	-	-
283	I100618661	Germany	female	41	European	none	2022/4/8	negative	negative	-	27.56	22.27	-	-
284	I100618662	Germany	female	35	European	none	2022/4/9	negative	negative	-	33.98	26.32	-	-
285	I100618663	Germany	female	42	European	none	2022/4/8	negative	negative	-	28.27	24.74	-	-
286	I100618676	Germany	male	32	-	-	-	negative	negative	-	29.36	21.23	-	-
287	I100618677	Germany	male	35	-	-	-	negative	negative	-	28.33	21.6	-	-
288	I100618679	Germany	female	18	-	-	-	negative	negative	-	28.79	22.27	-	-
289	I100618680	Germany	male	29	-	-	-	negative	negative	-	28.79	22.27	-	-
290	I100618681	Germany	female	21	-	-	-	negative	negative	-	28.29	22.53	-	-
291	H61-EG-000	Germany	male	32	-	-	2022/3/24	negative	positive	30.06	30.66	23.3	28.33	BA.2
292	25F-TU5-000	Germany	female	55	-	-	2022/3/26	positive	negative	-	31.17	23.93	-	-
293	27N-NN3-000	Germany	female	19	-	-	2022/3/29	positive	positive	22.71	29.07	23.56	22.43	BA.2
294	2CV-4NH-000	Germany	male	60	-	-	2022/3/24	negative	negative	-	31.02	22.75	-	-
295	2LY-W06-000	Germany	female	6	-	-	2022/4/8	positive	positive	25.41	27.36	25.15	24.76	BA.2
296	2TB-PCM-000	Germany	male	5	-	-	2022/4/8	positive	positive	23.44	25.77	24.59	22.77	BA.2
297	2WB-TLU-000	Germany	male	4	-	-	2022/3/28	positive	positive	31.92	29.01	24.15	27.55	BA.2
298	4DM-N1B-000	Germany	male	52	-	-	2022/4/8	positive	positive	23.87	26.69	24.36	22.9	BA.2
299	4K8-6Z6-000	Germany	male	67	-	-	2022/3/26	negative	negative	-	31.16	23.75	-	-
300	4R0-25C-000	Germany	male	11	-	-	2022/4/8	positive	positive	18.99	23.43	23.51	18.31	BA.2
301	5H2-GH1-000	Germany	male	47	-	-	2022/3/24	positive	positive	26.11	29.29	22.73	23.93	BA.2
302	5WU-D5T-000	Germany	female	58	-	-	2022/3/28	negative	negative	-	30.73	24.2	-	-
303	608-2AX-000	Germany	female	61	-	-	2022/3/26	negative	negative	-	28.66	23.3	-	-
304	6AD-2Y-000	Germany	male	55	-	-	2022/4/8	positive	positive	37.17	29.08	27.85	33.83	BA.2
305	6CD-UG9-000	Germany	female	48	-	-	2022/3/29	negative	negative	-	28.75	23.2	-	-
306	6LV-H6G-000	Germany	male	24	-	-	2022/3/29	negative	positive	26.07	29.24	25.77	25.74	BA.2
307	6YQ-MMN-000	Germany	female	21	-	-	2022/3/24	negative	negative	-	29.64	21.88	-	-
308	70C-9FL-000	Germany	female	40	-	-	2022/3/24	negative	negative	-	31.41	22.25	-	-
309	738-8VX-000	Germany	female	54	-	-	2022/3/28	positive	positive	30.71	29.33	23.35	27.93	BA.2
310	7HW-E2Q-000	Germany	male	23	-	-	2022/3/24	negative	negative	-	33.81	23.5	-	-
311	7TS-USL-000	Germany	female	52	-	-	2022/3/24	positive	positive	28.55	31.41	23.82	27.01	BA.2
312	855-NNW-000	Germany	female	77	-	-	2022/3/26	negative	negative	-	29.76	24.56	-	-
313	880-EVR-000	Germany	female	48	-	-	2022/4/8	negative	negative	-	28.47	24.61	-	-
314	8LE-UXE-000	Germany	male	47	-	-	2022/3/26	negative	positive	26.06	31.05	25.5	24.13	BA.2
315	8P3-9HY-000	Germany	female	13	-	-	2022/3/29	positive	positive	25.18	29.02	25.63	24.42	-
316	8QH-XGW-000	Germany	male	11	-	-	2022/4/8	positive	positive	22.02	27.18	24.2	20.93	BA.2
317	8V6-UMW-000	Germany	female	48	-	-	2022/3/24	positive	positive	30.72	31.08	22.09	29	BA.2
318	951-2A0-000	Germany	female	12	-	-	2022/3/29	positive	positive	34.64	29.13	23.08	28.7	BA.2
319	951-JWJ-000	Germany	male	32	-	-	2022/4/6	negative	negative	-	29.62	25.19	-	-
320	AE3-163-000	Germany	female	54	-	-	2022/3/29	positive	positive	21.34	28.26	23.48	20.07	BA.2
321	AFK-2AV-000	Germany	female	27	-	-	2022/3/29	negative	negative	-	29.3	27.03	-	-
322	AGB-WYG-000	Germany	female	48	-	-	2022/3/26	positive	positive	26.16	35.26	24.81	23.45	BA.2
323	AGK-8VE-000	Germany	male	30	-	-	2022/3/28	positive	positive	21.89	31.36	21.37	19.48	BA.2
324	AN1-HXW-000	Germany	male	36	-	-	2022/3/28	positive	positive	25.97	30.52	24.14	23.77	BA.2
325	AP0-C7E-000	Germany	female	24	-	-	2022/3/26	positive	negative	-	-	25.55	-	-
326	AW2-53E-000	Germany	female	40	-	-	2022/3/28	positive	positive	30.38	33.13	23	25.43	BA.2
327	AXG-3A-000	Germany	female	18	-	-	2022/3/29	positive	negative	-	29.22	24.5	-	-
328	B9M-C0Q-000	Germany	female	50	-	-	2022/3/24	positive	positive	25.14	33.77	23.33	23.45	BA.2
329	BA6-3BN-000	Germany	male	14	-	-	2022/3/29	positive	positive	26.6	28.82	24.32	26.1	BA.2
330	B1P-G2N-000	Germany	male	53	-	-	2022/4/8	positive	positive	25.04	28.52	24.83	23.77	BA.2
331	BMK-DHE-000	Germany	female	29	-	-	2022/3/26	positive	positive	34.48	32.56	25.05	29.39	BA.2
332	BZZ-Q1A-000	Germany	female	63	-	-	2022/3/29	negative	negative	-	28.66	23.03	-	-
333	C13-ZL0-000	Germany	female	16	-	-	2022/3/24	positive	positive	23.82	32.63	24.03	21.89	BA.2
334	CN2-33L-000	Germany	male	41	-	-	2022/3/28	positive	positive	26.16	30.16	23.73	23.08	BA.2
335	D0S-H5M-000	Germany	male	62	-	-	2022/3/28	positive	positive	21.69	38.38	22.37	18.42	BA.2
336	DBA-6M1-000	Germany	male	40	-	-	2022/3/26	positive	positive	26.44	32.9	25.55	24.62	BA.2
337	DHH-GCA-000	Germany	female	38	-	-	2022/3/29	positive	positive	23.43	29.13	23.52	22.41	BA.2
338	ELF-27-000	Germany	female	12	-	-	2022/3/29	negative	negative	-	28.84	25.42	-	-
339	EMW-XFO-000	Germany	female	38	-	-	2022/3/24	positive	positive	25.67	33.57	23.21	23.45	BA.2
340	EUS-1WB-000	Germany	female	7	-	-	2022/3/29	positive	positive	22.51	28.4	23.65	21.34	BA.2
341	F3Y-JYE-000	Germany	female	26	-	-	2022/3/29	positive	positive	28.65	28.58	24.08	26.35	BA.2
342	FGW-46V-000	Germany	female	56	-	-	2022/4/8	positive	positive	24.1	27.29	24.07	23.38	BA.2
343	FH2-HNH-000	Germany	female	4	-	-	2022/4/8	positive	positive	24.1	26.65	22.51	23.43	BA.2
344	FQK-K9W-000	Germany	female	27	-	-	2022/3/28	positive	positive	25.07	30.21	22.72	23.06	BA.2
345	FY9-BKE-000	Germany	female	31	-	-	2022/3/26	positive	positive	34.94	-	23.97	36.45	BA.2

375	O69-ZNF-000	Germany	female	5	-	-	2022/3/24	positive	positive	23.25	28.31	21.91	21.87	BA.2
376	Q7M-GQA-000	Germany	female	20	-	-	2022/3/24	negative	negative	-	32.98	22.82	-	-
377	QJT-GA2-000	Germany	female	35	-	-	2022/3/28	positive	positive	22.28	29.26	22.02	20.21	BA.2
378	QMQ-CYU-000	Germany	female	31	-	-	2022/3/24	positive	positive	25.81	29.48	23.25	23.78	BA.2
379	QWV-X88-000	Germany	female	62	-	-	2022/3/29	positive	positive	22.37	28.52	23.75	21.32	BA.2
380	R73-M8A-000	Germany	female	22	-	-	2022/3/24	positive	positive	22.69	34.34	22.5	21.01	BA.2
381	RLH-QZM-000	Germany	male	63	-	-	2022/3/24	negative	negative	-	30.42	21.15	-	-
382	RLV-HPW-000	Germany	female	51	-	-	2022/3/24	positive	positive	27	29.12	23.51	25.01	BA.2
383	S8N-9JJ-000	Germany	female	60	-	-	2022/3/26	negative	negative	-	-	22.75	-	-
384	SKZ-JUO-000	Germany	male	35	-	-	2022/3/29	positive	positive	21.06	28.1	22.1	20.74	BA.2
385	SVX-MEY-000	Germany	female	2	-	-	2022/3/29	positive	positive	31.76	28.88	24.7	31.02	BA.2
386	SV6-HQ8-000	Germany	male	42	-	-	2022/3/24	positive	positive	23.13	29.35	22.8	21.64	BA.2
387	T3B-7CU-000	Germany	female	55	-	-	2022/3/24	negative	negative	-	30.22	23.55	-	-
388	TB4-SW3-000	Germany	male	50	-	-	2022/3/24	positive	positive	35.88	29.32	23.77	31.23	BA.2
389	TKL-A3W-000	Germany	female	34	-	-	2022/3/24	positive	positive	18.88	39.27	22.44	17.07	BA.2
390	TP4-744-000	Germany	female	51	-	-	2022/3/24	positive	positive	25.93	34.5	23.45	22.38	BA.2
391	TPM-6BH-000	Germany	female	27	-	-	2022/3/26	positive	positive	30.97	32.59	25.57	27.43	BA.2
392	U4A-7UL-000	Germany	female	75	-	-	2022/4/9	positive	positive	26.36	-	24.79	24.7	BA.2
393	U5Y-GPT-000	Germany	female	55	-	-	2022/3/28	positive	positive	17.85	32.28	22.09	16.27	BA.2
394	V24-Z3X-000	Germany	female	20	-	-	2022/3/24	positive	positive	36.32	30.67	23.05	30.58	BA.2
395	V47-OYZ-000	Germany	female	59	-	-	2022/3/28	positive	positive	23.86	29.8	22.54	21.55	BA.2
396	V7K-FEV-000	Germany	male	49	-	-	2022/3/28	positive	positive	22.85	30.13	21.29	20.81	BA.2
397	V7Q-CNK-000	Germany	male	52	-	-	2022/4/8	negative	negative	-	28.34	23.9	-	-
398	V8J-9LN-000	Germany	male	36	-	-	2022/3/28	positive	positive	22.03	32.25	23.17	19.53	BA.2
399	V8S-SAA-000	Germany	male	17	-	-	2022/3/28	negative	negative	-	30.65	21.62	-	-
400	VA2-ZB6-000	Germany	female	19	-	-	2022/3/26	positive	positive	24.97	28.55	25.22	23.02	BA.2
401	VA9-K56-000	Germany	female	31	-	-	2022/3/29	positive	positive	33.85	29.44	24.97	29.89	BA.2
402	VMJ-SA8-000	Germany	male	58	-	-	2022/3/24	positive	positive	25.6	28.46	22.48	23.85	BA.1
403	VMJ-SA8-001	Germany	female	58	-	-	2022/3/24	positive	positive	35.27	30.06	22.07	31.39	BA.1
404	VSH-BGK-000	Germany	female	38	-	-	2022/4/8	positive	positive	25.11	26.96	23.82	24.24	BA.2
405	WE4-HSM-000	Germany	female	37	-	-	2022/4/8	positive	positive	22.92	25.99	23.34	22.19	BA.2
406	WFA-2SX-000	Germany	diverse	36	-	-	2022/3/26	negative	negative	-	31.52	25.93	-	-
407	WFP-46Y-000	Germany	female	39	-	-	2022/3/28	positive	positive	19.33	-	21.53	16.48	BA.2
408	WML-1Y6-000	Germany	female	21	-	-	2022/3/26	positive	positive	27.43	28.5	23.97	25.38	BA.2
409	WMS-EAC-000	Germany	male	37	-	-	2022/3/28	negative	negative	-	30.37	22.09	-	-
410	WUN-ABS-000	Germany	female	41	-	-	2022/3/28	positive	positive	25.08	30.18	24.12	22.25	BA.2
411	WVT-4G6-000	Germany	male	36	-	-	2022/3/26	positive	positive	23.98	30.21	24.95	22.14	BA.2
412	X4X-1CE-000	Germany	male	55	-	-	2022/3/28	positive	positive	22.15	30.39	22.96	19.35	BA.2
413	Y8Q-WWG-000	Germany	female	42	-	-	2022/3/24	negative	negative	-	30.01	23.2	-	-
414	YAD-GX8-000	Germany	female	6	-	-	2022/4/9	positive	positive	32.59	33.55	24.89	30.5	BA.2
415	YD7-6N5-000	Germany	female	56	-	-	2022/3/28	negative	negative	-	29.18	24.3	-	-
416	YQH-EWN-000	Germany	male	12	-	-	2022/4/9	positive	positive	21.09	-	24.31	19.61	BA.2
417	YS4-AJH-000	Germany	female	47	-	-	2022/3/29	positive	positive	25.12	28.64	23.2	24.78	BA.2
418	YXN-OPL-000	Germany	female	42	-	-	2022/3/24	negative	negative	-	32.04	23.73	-	-
419	Z78-8ZQ-000	Germany	male	45	-	-	2022/3/26	negative	positive	33.91	-	22.98	34.17	BA.1
420	ZEN-F88-000	Germany	female	32	-	-	2022/3/28	negative	negative	-	33.82	24.06	-	-
421	ZHP-83X-000	Germany	male	82	-	-	2022/3/24	negative	negative	-	30.68	23.05	-	-
422	LID 2000 01	Germany	female	48	-	-	2022/4/7	negative	negative	-	-	-	-	-
423	LID 2000 02	Germany	female	36	-	-	2022/4/7	negative	negative	-	-	-	-	-
424	LID 2000 03	Germany	female	32	-	-	2022/4/7	negative	negative	-	-	-	-	-
425	LID 2000 04	Germany	male	2	-	-	2022/4/7	negative	negative	-	-	-	-	-
426	LID 2000 05	Germany	female	34	-	-	2022/4/7	negative	negative	-	-	-	-	-
427	LID 2000 06	Germany	female	36	-	-	2022/4/7	negative	negative	-	-	-	-	-
428	LID 2000 07	Germany	female	53	-	-	2022/4/7	negative	negative	-	-	-	-	-
429	LID 2000 08	Germany	female	38	-	-	2022/4/7	negative	negative	-	-	-	-	-
430	LID 2000 09	Germany	female	33	-	-	2022/4/7	negative	negative	-	-	-	-	-
431	LID 2000 10	Germany	female	42	-	-	2022/4/7	negative	negative	-	-	-	-	-
432	LID 2000 11	Germany	female	38	-	-	2022/4/7	negative	negative	-	-	-	-	-
433	LID 2000 12	Germany	female	39	-	-	2022/4/7	negative	negative	-	-	-	-	-
434	LID 2000 13	Germany	female	36	-	-	2022/4/7	negative	negative	-	-	-	-	-
435	LID 2000 14	Germany	male	25	-	-	2022/4/7	negative	negative	-	-	-	-	-
436	LID 2000 15	Germany	female	37	-	-	2022/4/7	negative	negative	-	-	-	-	-
437	LID 2000 16	Germany	female	47	-	-	2022/4/7	negative	negative	-	-	-	-	-
438	LID 2000 17	Germany	female	40	-	-	2022/4/7	negative	negative	-	-	-	-	-
439	LID 2000 18	Germany	male	68	-	-	2022/4/7	negative	negative	-	-	-	-	-
440	LID 2000 19	Germany	female	44	-	-	2022/4/7	negative	negative	-	-	-	-	-
441	LID 2000 20	Germany	female	27	-	-	2022/4/7	negative	negative	-	-	-	-	-
442	LID 2000 21	Germany	female	42	-	-	2022/4/7	negative	negative	-	-	-	-	-
443	LID 2000 22	Germany	male	3	-	-	2022/4/7	negative	negative	-	-	-	-	-
444	LID 2000 23	Germany	female	36	-	-	2022/4/7	negative	negative	-	-	-	-	-
445	LID 2000 24	Germany	female	55	-	-	2022/4/7	negative	negative	-	-	-	-	-
446	LID 2000 25	Germany	female	48	-	-	2022/4/7	negative	negative	-	-	-	-	-