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04.06.2021

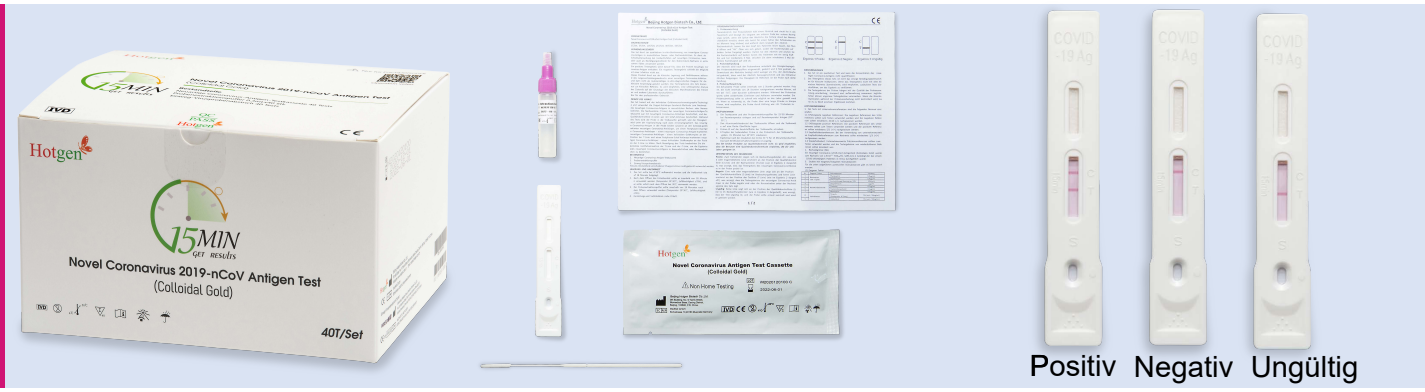
1. Produktinformationsblatt
2. Gebrauchsanweisung
3. Klinische Studie
4. Analyse mit Ct-Werten
5. Mutationen
6. Autorisierung
7. Zertifikate

Geschäftsführer / Managing Director Elke von Brand, Martin Lehner
Handelsregister / Registration HRB 245104, Amtsgericht Stuttgart **USt-IDNr** DE201456894
Bankverbindung HypoVereinsbank Rosenheim, IBAN: DE44 7112 0077 0021 9404 96, BIC (SWIFT): HYVEDEMM448
Datenschutz www.asid-bonz.de/unternehmen/footer/datenschutzerklaerung

Novel Coronavirus 2019-nCoV Antigen Test

(Colloidal Gold)

Produktinformation



MEDIZINPRODUKT In-vitro Diagnostikum Sonstige

Set zur qualitativen in-vitro-Bestimmung von neuartigem Coronavirus-Antigen in humanen Nasen- oder Rachen-Abstrichen

Zur Schnelluntersuchung bei Verdachtsfällen oder als Bestätigungsmethode für den Nukleinsäure-Nachweis bei entlassenen Patienten

Probe-Entnahme durch Nasopharyngeal- oder Rachenraumabstrich
Anzuwenden durch medizinisches Fachpersonal

Sichtbarkeit des Ergebnisses nach 15 Minuten

Positive Test-Ergebnisse weisen auf die Existenz des Corona-Antigens hin
Negative Test-Ergebnisse schließen die Möglichkeit einer Infektion nicht aus

Für die Verwendung bei Mutationsvarianten geeignet

Nicht einzusetzen
- für andere als in-vitro-diagnostische Bereiche

PRODUKTBESCHREIBUNG

Ausstattung Test-Kit	Coronavirus-Antigen-Testkassette Probenahme-Röhrchen mit Verschlusskappe und inkludiertem Extraktionspuffer Sterile Abstrich-Tupfer (EO) Gebrauchsanweisung

ASID BONZ GmbH
A Subsidiary of Medi-Globe®
Geschäftsführer
Elke von Brand
Martin Lehner

Handelsregister
Amtsgericht Stuttgart
HRB 245104
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Sterilisationsverfahren	Abstrich-Tupfer, Ethylenoxid (EO) Set und restliche Komponenten unsteril
Haltbarkeit	18 Monate
Lagerung	+4 bis +30°C, trocken und lichtgeschützt
Einmalprodukt	
Nicht wiederverwendbar	

BESTELLINFORMATION

REF	Name	VE [Kits]
688068.SH	Novel Coronavirus 2019-nCoV Antigen Test (Colloidal Gold)	40

HERSTELLER

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PEOPLE´S REPUBLIC OF CHINA

VERTRIEB

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Neuartiges Coronavirus (2019-nCoV)-Antigentest (Kolloidales Gold) Gebrauchsanweisung

PRODUKTNAME

Neuartiges Coronavirus (2019-nCoV)-Antigentest (Kolloidales Gold)

SPEZIFIKATIONEN

1T/Set, 5T/Set, 20T/Set, 25T/Set, 40T/Set, 50T/Set

VERWENDUNGSZWECK

Das Set dient zur qualitativen in-vitro-Bestimmung von neuartigem Coronavirus-Antigen Nucleocapsid-Protein (N-Protein) in menschlichen Nasen- oder Rachenabstrichen. Es dient als Schnelluntersuchung bei Verdachts- fällen auf neuartiges Coronavirus, kann aber auch als Bestätigungsmethode für den Nuklein- säure-Nachweis in entlassenen Fällen verwendet werden. Mutationen im S-Protein haben keinen Einfluss auf das Detektionsergebnis des Produktes. Ein positives Testergebnis weist darauf hin, dass die Proben neuartiges Coronavirus-Antigen enthalten. Ein negatives Testergebnis schließt die Möglichkeit einer Infektion nicht aus. Dieses Produkt dient nur als klinische Lagerung und Notfallreserve während des Lungenent- zündungsausbruchs einer neuartigen Coronavirus-Infektion und kann nicht als routinemäßiges in-vitro-diagnostisches Reagenz für die klinische Anwendung genutzt werden. Die Testergeb- nisse des Sets dienen nur zur klinischen Referenz. Es wird empfohlen, eine umfangreiche Analyse des Zustands auf der Grundlage der klinischen Manifestationen des Patienten und anderer Labortests durchzuführen.

Nur für den professionellen Gebrauch.

PRINZIP DES ASSAYS

Das Set basiert auf der kolloidalen Goldimmunochromatographie-Technologie und verwendet die Doppel-Antikörper-Sandwich-Methode zum Nachweis des neuartigen Coronavirus-Antigens in menschlichen Rachen- oder Nasenabstrichen. Die Nachweislinie (T-Linie) der neuartigen Coronavirus-Antigen-Testkassette war mit neuartigem Coronavirus-Antikörper beschichtet, und die Qualitätskontrolllinie (C-Linie) war mit Schaf-Antimaus beschichtet. Während des Tests wird die Probe in die Testkassette getropft, und die Flüssigkeit wird unter der Kapillarwirkung nach oben chromatographiert. Das neuartige Coronavirus-Antigen in der Probe bindet zunächst an den kolloidal-goldmarkierten neuartigen Coronavirus-Antikörper, um einen Festphasen-neuartigen Coronavirus-Antikörper - einen neuartigen Coronavirus-Antigen-markierten neuartigen Coronavirus-Antikörper - einen kolloidalen Goldkomplex an der Position der T-Linie und einen Festphasen-Schaf-Antimaus-markierten neuartigen Coronavirus-Antikörper - einen kolloidalen Goldkomplex an der Position der C-Linie zu bilden. Nach Beendigung des Tests beobachten Sie die kolloidale Goldfarbenreaktion der T-Linie und der C-Linie, um die Ergebnisse des neuartigen Coronavirus-Antigens in Nasenabstrichen oder Rachenabstrichen zu bestimmen.

BESTANDTEILE

1. Neuartige Coronavirus-Antigen-Testkassette
2. Probenextraktionspuffer
3. Einweg-Virusprobenabstrich

Hinweis: Bestandteile verschiedener Chargen können nicht gemischt verwendet werden.

LAGERUNG UND HALTBARKEIT

1. Das Set sollte bei 4~ 30°C aufbewahrt werden und die Haltbarkeit ist auf 18 Monate festgelegt.
2. Nach dem Öffnen des Folienbeutels sollte er innerhalb von 30 Minuten verwendet werden (Temperatur 10~30°C, Luftfeuchtigkeit ≤70%), und er sollte sofort nach dem Öffnen bei 30°C verwendet werden.
3. Der Probenextraktionspuffer sollte innerhalb von 18 Monaten nach dem Öffnen verwendet werden (Temperatur 10~30°C, Luftfeuchtigkeit ≤70%).
4. Herstellungs- und Verfallsdatum siehe Etikett.

PROBENANFORDERUNGEN

1. Probensammlung:

Nasenabstrich: Der Probenehmer hält einen Abstrich und steckt ihn in das Nasenloch und be- wegt ihn langsam am unteren Ende des unteren Nasengangs zurück, wenn die Spitze des Abstrichs die hintere Wand der Nasenrachenhöhle erreicht, dreht sich leicht für einen Zyklus (bei Reflexhusten einen Moment lang bleiben) und entfernt dann langsam den Abstrich.

Rachenabstrich: Lassen Sie den Kopf des Patienten leicht kippen, den Mund öffnen und „Ah“- Töne von sich geben, wobei die Rachenmandeln auf beiden Seiten freigelegt werden. Halten Sie den Abstrich und wischen Sie die Rachenmandeln auf beiden Seiten des Patienten mit ein wenig Kraft hin und her mindestens 3 Mal. Wischen Sie dann mindestens 3 Mal die hintere Rachenwand auf und ab.

2. **Probenbehandlung**

Der Abstrich wird nach der Probenahme unterhalb des Flüssigkeitsspiegels des Probenextraktion spuffers eingeweicht, gedreht und 3 Mal gedrückt, die Einweichzeit des Abstrichs beträgt nicht weniger als 15 s, der Abstrichkopf wird gedrückt, dann wird der Abstrich herausgenommen und das Entnahmeröhrchen festgezogen. Die Flüssigkeit im Röhrchen ist die Probe nach der Behandlung.

3. Probenaufbewahrung

Die behandelte Probe sollte innerhalb von 1 Stunde getestet werden. Proben, die nicht inner- halb von 24 Stunden nachgewiesen werden können, sollten bei -70°C oder darunter aufbewahrt werden. Während des Probentransports sollte wiederholtes Einfrieren und Auftauen vermieden werden. Die Probensammlung sollte so schnell wie möglich an das Labor gesandt werden. Wenn es notwendig ist, die Probe über eine lange Strecke zu transportieren, wird empfohlen, die Probe durch Kühlung wie z.B. Trockeneis zu konservieren.

PRÜFVERFAHREN

1. Die Testkassette und den Probenextraktionspuffer für 15~30 Minuten bei Raumtemperatur einlegen und auf Raumtemperatur bringen (10~30°C).
2. Den Aluminiumfolienbeutel der Testkassette öffnen und die Testkassette auf eine flache Oberfläche legen.
3. Proben-ID auf die Kunststoffhülle der Testkassette schreiben.
4. 4~5 Tropfen der behandelten Probe in das Probenloch der Testkassette geben. 15 Minuten bei 10 ~ 30°C inkubieren.
5. Ergebnisse nach der Inkubation bei 10 bis 30 °C für 15 Minuten beobachten. Das nach 30 Minuten erhaltene Ergebnis ist ungültig.

Das Set besitzt Produkte zur Qualitätskontrolle nicht. Es wird empfohlen, dass die Benutzer eine Qualitätskontrollmethode einführen, die für sein Labor geeignet ist.

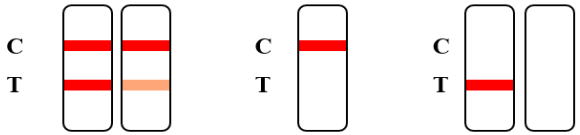
INTERPRETATION DES ERGEBNISSES

Positiv: Zwei Farbbänder zeigen sich im Beobachtungsfenster, d.h. eine rote oder magentafarb- ene Linie erscheint an der Position der Qualitätskontrolllinie (C-Linie) und der Nachweislinie (T-Linie) (wie in Ergebnis 1 dargestellt), was anzeigt, dass das Testergebnis des neuartigen Coronavirus-Antikörpers in der Probe positiv ist.
Negativ: Eine rote oder magentafarbene Linie zeigt sich an der Position der Qualitätskontroll- linie (C-Linie) im Beobachtungsfenster, und keine Linie erscheint an der Position der Testlinie (T-Linie) (wie im Ergebnis 2 dargestellt), was anzeigt, dass die Testergebnisse der neuartigen Coronavirus-Antikörper in der Probe negativ sind oder die Konzentration unter der Nachweis- grenze des Sets legt.
Ungültig: Keine Linie zeigt sich an der Position der Qualitätskontrolllinie (Linie C) im Beobachtungsfenster (wie in Ergebnis 3 dargestellt), was anzeigt, dass der Test ungültig ist, und die Probe sollte erneut sammelt und wieder getestet werden.

EINSCHRÄNKUNGEN

1. Das Set ist ein qualitativer Test und kann die Konzentration des neuartigen Coronavirus- Antigens nicht quantifizieren.
2. Das Testergebnis dieses Sets ist nicht das einzige Bestätigungskennzeichen für klinische Indikationen. Wenn das Testergebnis nicht mit dem klinischen Nachweis übereinstimmt, wird empfohlen, zusätzliche Tests durchzuführen, um das Ergebnis zu verifizieren.
3. Die Testergebnisse der Proben hängen mit der Qualität der Probensammlung, -verarbeitung, -transport und -aufbewahrung zusammen. Jegliche Fehler können ungenaue Testergebnisse verursachen. Wenn die Kreuzkontamination während der Probenverarbeitung nicht kontrol- liert wird, kann es zu falsch positiven Ergebnissen kommen.

LEISTUNGSMERKMALE



Ergebnis 1: Positiv **Ergebnis 2: Negativ** **Ergebnis 3: Ungültig**

1. Bei Tests mit Unternehmensreferenzen sind die folgenden Normen einzuhalten:
1.1 Erfüllungsrate negativer Referenzen: Die negativen Referenzen des Unternehmens sollten zum Testen verwendet werden und die negativen Referenzen sollten mindestens 20/20 (-/-) nachgewiesen werden.
1.2 Erfüllungsrate positiver Referenzen: Die positiven Referenzen des Unternehmens sollten zum Testen verwendet werden und die positiven Referenzen sollten mindestens 5/5 (+ / +) nachgewiesen werden.
1.3 Empfindlichkeitsreferenzen: Bei der Verwendung von unternehmensweiten Empfindlichkeits- referenzen zum Nachweis sollte mindestens 1/3 (+ / +) nachgewiesen werden.
1.4 Wiederholbarkeit: Unternehmensweite Präzisionsreferenzen sollten zum Testen verwendet werden und die Testergebnisse von wiederholbaren Referenzen sollten konsistent sein.
2. Nachweisgrenze (NG)
Ein neuartiger Coronavirus (2019-nCoV)-Antigentest (Kolloidales Gold) wurde zum Nachweis von $2{,}5\times10^{2.2}$ $TCID_{50}$/mL SARS-CoV-2 bestätigt, der bei einem COVID-19-bestätigten Patienten in China durchgeführt wurde.
3. Studien mit exogenen/endogenen Störsubstanzen:
Für die unten aufgeführten potenziellen Störsubstanzen gibt es keine Interferenzen.
(1) Exogener Faktor

Nr.	Exogener Faktor	Störsubstanzen	Testkonz.
1	Nasensprays oder Tropfen	Phenylephrin	128μg/mL
2		Oxymetazolin	128μg/mL
3		Kochsalzlösungs-Nasenspray 10%	10%(v/v)
4	Nasenkortikosteroide	Dexamethason	2μg/mL
5		Flunisolid	0.2μg/mL
6		Triamcinolonacetonid	0.2μg/mL
7		Mometason	0.5μg/mL
8	Halstabletten	Strepsils (Flurbiprofen 8.75mg)	5% (w/v, 50mg/mL)
9		Halsbonbon	5% (w/v, 50mg/mL)
10	Oralanästhetikum	Anbesol (Benzocain 20%)	5% (v/v)
11	Antivirale Medikamente	α-Interferon-2b	0.01μg/mL
12		Zanamivir (Influenza)	2μg/mL
13		Ribavirin (HCV)	0.2μg/mL
14		Oseltamivir (Influenza)	2μg/mL
15		Peramivir (Influenza)	60μg/mL
16		Lopinavir (HIV)	80μg/mL
17		Ritonavir (HIV)	20μg/mL
18		Arbidol ((Influenza)	40μg/mL
19	Antibiotikum	Levofloxacin-Tabletten	40μg/mL
20		Azithromycin	200μg/mL
21		Ceftriaxon	800μg/mL
22		Meropenem	100μg/mL
23	Antibakteriell, systemisch	Tobramycin	128μg/mL
24	Andere	Muzin: Submaxillardrüse vom Rind, Typ	100 μg/mL
25		Biotin	100 μg/mL

(2) Endogener Faktor

Nr.	Endogener Faktor	Störsubstanzen	Testkonz.
1	Autoimmunerkrankung	Menschlicher Antimaus-Antikörper, HAMA	800 ng/mL
2	Serumprotein	Vollblut (Mensch), EDTA antikoaguliert	10% (w/w)

4. Kreuzreaktivität und mikrobielle Interferenz:
Es gab keine Kreuzreaktionen und Interferenzen mit den unten aufgeführten potentiellen kreuzr eagierenden Mikroorganismen.

Nr.	Kreuzreagierende Substanz	Stamm	Konzentration der kr euzreagierenden Sub stanz
1	Menschliches Coronavirus	HKU1	2×10^5 $TCID_{50}$/mL
2		229E	2×10^5 $TCID_{50}$/mL

3		OC43	2 × 10^5 $TCID_{50}$/mL
4		NL63	2 × 10^5 $TCID_{50}$/mL
5		SARS	2 × 10^5 $TCID_{50}$/mL
6		MERS	2 × 10^5 $TCID_{50}$/mL
7	Adenovirus	Typ 1	2 × 10^5 $TCID_{50}$/mL
8		Typ 2	2 × 10^5 $TCID_{50}$/mL
9		Typ 3	2 × 10^5 $TCID_{50}$/mL
10		Typ 4	2 × 10^5 $TCID_{50}$/mL
11		Typ 5	2 × 10^5 $TCID_{50}$/mL
12		Typ 7	2 × 10^5 $TCID_{50}$/mL
13		Typ 55	2 × 10^5 $TCID_{50}$/mL
14	Humanes Metapneumovirus (hMPV)	hMPV 3 Typ B1 / Peru2-2002	2 × 10^5 $TCID_{50}$/mL
15		hMPV 16 Typ A1 / IA10-2003	2 × 10^5 $TCID_{50}$/mL
16	Parainfluenza-Virus	Typ 1	2 × 10^5 $TCID_{50}$/mL
17		Typ 2	2 × 10^5 $TCID_{50}$/mL
18		Typ 3	2 × 10^5 $TCID_{50}$/mL
19		Typ 4A	2 × 10^5 $TCID_{50}$/mL
20	Influenza A	H1N1	2 × 10^5 $TCID_{50}$/mL
21		H3N2	2 × 10^5 $TCID_{50}$/mL
22		H5N1	2 × 10^5 $TCID_{50}$/mL
23		H7N9	2 × 10^5 $TCID_{50}$/mL
24	Influenza B	Yamagata	2 × 10^5 $TCID_{50}$/mL
25		Victoria	2 × 10^5 $TCID_{50}$/mL
26	Enterovirus	Typ 68	2 × 10^5 $TCID_{50}$/mL
27		09/2014 Isolat 4	2 × 10^5 $TCID_{50}$/mL
28	Respiratorisches Synzytialvirus	Typ A	2 × 10^5 $TCID_{50}$/mL
29		Typ B	2 × 10^5 $TCID_{50}$/mL
30	Rhinovirus	A16	2 × 10^5 $TCID_{50}$/mL
31		Typ B42	2 × 10^5 $TCID_{50}$/mL
32	Chlamydia pneumoniae	TWAR Stamm TW-183	5 × 10^6 CFU/mL
33	Haemophilus influenzae	NCTC 4560	5 × 10^6 CFU/mL
34	Legionella pneumophila	Bloomington-2	5 × 10^6 CFU/mL
35		Los Angeles-1	5 × 10^6 CFU/mL
36		82A3105	5 × 10^6 CFU/mL
37	Mycobacterium tuberculosis	K	5 × 10^6 CFU/mL
38		Erdman	5 × 10^6 CFU/mL
39		HN878	5 × 10^6 CFU/mL
40		CDC1551	5 × 10^6 CFU/mL
41		H37Rv	5 × 10^6 CFU/mL
42	Streptococcus pneumonia	4752-98 [Maryland (D1)6B-17]	5 × 10^6 CFU/mL
43		178 [Poland 23F-16]	5 × 10^6 CFU/mL
44		262 [CIP 104340]	5 × 10^6 CFU/mL
45		Slovakia 14-10 [29055]	5 × 10^6 CFU/mL
46	Streptococcus pyrogens	Typstamm T1 [NCIB 11841, SF 130]	5 × 10^6 CFU/mL
47	Bordetela pertussis	NCCP 13671	5 × 10^6 CFU/mL
48	Mycoplasma pneumoniae	Mutant 22	5 × 10^6 CFU/mL
49		FH-Stamm von Eaton Agent [NCTC 10119]	5 × 10^6 CFU/mL
50		M129-B7	5 × 10^6 CFU/mL
51	Pneumocystis jirovecii (PJP)	N/A	N/A
52	Gepoolte menschliche Nasenwäsche	N/A	N/A
53	Candida albicans	3147	5 × 10^6 CFU/mL
54	Pseudomonas aeruginosa	R. Hugh 813	5 × 10^6 CFU/mL
55	Staphylococcus epidermidis	FDA Stamm PCI 1200	5 × 10^6 CFU/mL
56	Streptococcus salivarius	S21B [IFO 13956]	5 × 10^6 CFU/mL

5. Hakeneffekt:
Bei 1,0×$10^{6,2}$ $TCID_{50}$/mL SARS-CoV-2, das aus einem COVID-19 bestätigten Patienten in China isoliert wurde, tritt kein Hakeneffekt auf.

6. Klinische Leistung:
(1) Nasenabstrichproben
Die klinische Leistung des neuartigen Coronavirus (2019-nCoV)-Antigentest (Kolloidales Gold) wurde durch die Untersuchung von 207 positiven und 410 negativen Proben auf SARS-CoV-2-Antigen (Ag) mit einer Empfindlichkeit von 96,62% (95% KI: 93,16-98,63%) und einer Spezifität von 99,76% (95% KI: 98,65-99,99%) bestimmt.

		PCR-Testergebnisse		
		Positiv	Negativ	Gesamt
Ergebnisse des neuartigen Coronavirus (2019-CoV)-Antigentest (Kolloidales Gold)	Positiv	200	1	201
	Negativ	7	409	416
	Gesamt	207	410	617
		Empfindlichkeit	Spezifität	Gesamtprozentuale Übereinstimmung
		96,62% [95% KI: 93,16%; 98,63%]	99,76% [95% KI: 98,65%; 99,99%]	98,70% [95% KI: 97,46%; 99,44%]

(2) Rachenabstrichproben
Die klinische Leistung des neuartigen Coronavirus (2019-nCoV)-Antigentest (Kolloidales Gold) wurde durch die Untersuchung von 207 positiven und 410 negativen Proben auf SARS-CoV-2-Antigen (Ag) mit einer Empfindlichkeit von 97,10% (95% KI: 93,80-98,93%) und einer Spezifität von 99,76% (95% KI: 98,65-99,99%) bestimmt.

		PCR-Testergebnisse		
		Positiv	Negativ	Gesamt
Ergebnisse des neuartigen Coronavirus (2019-CoV)-Antigentest (Kolloidales Gold)	Positiv	201	1	202
	Negativ	6	409	415
	Gesamt	207	410	617
		Empfindlichkeit	Spezifität	Gesamtprozentuale Übereinstimmung
		97,10% [95% KI: 93,80%; 98,93%]	99,76% [95% KI: 98,65%; 99,99%]	98.87% [95% KI: 97.68%; 99.54%]

VORSICHTSMASSNAHMEN

1. Das Set ist nur für den in-vitro diagnostischen Gebrauch vorgesehen. Bitte lesen Sie vor Untersuchung die Betriebsanleitung sorgfältig durch.
2. Bitte verwenden Sie den in diesem Set enthaltenen Abstrich und Probenextraktionspuffer. Ersetzen Sie die Probenextraktion in diesem Set nicht durch Bestandteile in anderen Sets.
3. Der Betrieb sollte streng nach Anleitung erfolgt werden und unterschiedliche Chargen sollten nicht gemischt verwendet werden.
4. Der Benutzer sollte die Probe so schnell wie möglich testen, und die Bewertung der klinischen Leistung einer gefrorenen Probe kann sich von der einer frischen Probe unterscheiden.
5. Positive und negative prädiktive Werte hängen stark von den Prävalenzraten ab. Positive Testergebnisse stellen in Zeiten geringer/keiner SARS-CoV-2-Aktivität bei niedriger Krankheitsprävalenz mit größerer Wahrscheinlichkeit falsch positive Ergebnisse dar. Falsch negative Testergebnisse sind wahrscheinlicher, wenn die Prävalenz der durch SARS-CoV-2 verursachten Krankheit hoch ist.
6. Die Empfindlichkeit des Tests nach den ersten fünf Tagen nach Auftreten der Symptome hat gezeigt, dass sie im Vergleich zu einem RT-PCR SARS-CoV-2-Assay abnimmt.
7. Nach dem Öffnen muss die Testkassette innerhalb von 30 Minuten verwendet werden (Temperatur 10~30°C, Luftfeuchtigkeit ≤70%), und sie sollten sofort nach dem Öffnen bei 30°C verwendet werden, und die unbenutzte Testkassette muss verschlossen und trocken gelagert werden.
8. Abfälle oder überschüssige Proben, die während des Tests anfallen, sollten entsprechend den infektiösen Erregern inaktiviert werden.

ERKLÄRUNG ZUR IDENTIFIZIERUNG

	Haltbarkeitsdatum	LOT	Charge		Bedienungsanleitung beachten
Σ	Inhalt ausreichend für <n> Tests		Temperaturbegrenzung	REF	Katalognummer
	Herstellungsdatum		Vorsicht		Nicht wiederverwenden
CE	CE-Kennzeichnung – IVDD 98/79/EC	EC REP	Bevollmächtigter in der Europäischen Gemeinschaft		Hersteller
IVD	Zur Verwendung in der In-vitro-Diagnostik		Von Sonnenlicht fernhalten		Trocken halten

Beijing Hotgen Biotech Co., Ltd.
9. Gebäude, Tianfu Straße Nr. 9, Biomedizinische Basis, Bezirk Daxing, Beijing, 102600, V.R. China.

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GENEHMIGUNGSDATUM UND REVISIONSDATUM DER ANWEISUNG

Genehmigt am June 2021;
Versionsnummer: V3. 2021-06-10 [Deu.]

Novel Coronavirus 2019-nCoV Antigen Test (Colloidal Gold)

Clinical Trial Summary Report

Research product name: Novel Coronavirus 2019-nCoV Antigen Test (Colloidal Gold)

Test start time: May 6th,2020

Test completion time: Aug.13th,2020

Model specifications: 40T/kit

Medical institutions undertaking clinical trials:

Fifth Medical Center of General Hospital of Chinese People's Liberation Army

The Sixth People's Hospital of Shenyang

Institute of Microbiology and Epidemiology, Academy of Military Medical Sciences

Peking Union Medical College Hospital, Chinese Academy of Medical Sciences

PLA Third Medical Center

Applicant: Beijing Hotgen Biotech Co., Ltd.
Contact: Xiao Ruifeng
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Reporting time: Aug.17th,2020

Beijing Hotgen Biotech Co., Ltd.

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Part 1. Summary of Research Report

Clinical trial sponsor	Beijing Hotgen Biotech Co., Ltd.
Clinical trial name	Novel Coronavirus 2019-nCoV Antigen Test (Colloidal Gold)
Clinical trial facility	Fifth Medical Center of General Hospital of Chinese People's Liberation Army,The Sixth People's Hospital of Shenyang,Institute of Microbiology and Epidemiology Academy of Military Medical Sciences,Peking Union Medical College Hospital Chinese Academy of Medical Sciences,PLA Third Medical Center
Purpose of clinical trials	Examine the clinical performance of the Novel Coronavirus 2019-nCoV Antigen Test (Colloidal Gold) for the detection of novel coronavirus 2019-nCoV antigen in human nasal swabs or throat swabs.
Clinical trial methods	In this clinical trial, the diagnostic criteria for the diagnosis of Coronavirus disease (COVID-19) infection and the results of the disease process (real-time fluorescent RT-PCR detection of novel coronavirus 2019-nCoV nucleic acid results, virus gene sequencing comparison) were selected as comparative methods for comparative research. Test results on clinical case samples. Statistics and calculation of the detection coincidence rate of the two. The differential samples should be fully analyzed in combination with the patient's epidemiological background, clinical symptoms, and disease outcomes to assess the Novel Coronavirus 2019-nCoV Antigen Test (Colloidal Gold) produced by Beijing Hotgen Biotech Co., Ltd. is used to qualitatively test the clinical performance of the novel coronavirus 2019-nCoV antigen in human nasal swabs or throat swabs.
Test kit name, specifications, batch number	Name: Novel Coronavirus 2019-nCoV Antigen Test (Colloidal Gold) Specification: 40 Tests/Kit; Lot number: W2020040300
Sample size	The total number of nasal swabs samples and throat swabs samples was 207 cases of NDV positive and 410 cases of NDV negative. Negative samples included 10 cases of HBsAg positive, 7 cases of HCV positive, 2 cases of HIV positive, 6 cases of abnormal liver function, 7 cases of abnormal renal function, 3 cases of abnormal blood glucose, influenza A, influenza B, and mycoplasma pneumoniae, Fever, upper respiratory tract

	infection, viral hepatitis, cirrhosis, brucellosis, etc.
Judgment method	Visual observation
Evaluation method	(1) The total coincidence rate of the diagnosis results of the assessment system and the reference system is greater than 80%. (2) The Kappa value of the consistency between the diagnostic results of the assessment system and the reference system is greater than 0.75.
Results and conclusions	(1) The positive coincidence rate, negative coincidence rate, and total coincidence rate of the diagnostic results of the assessment system and the reference system are: Nasal swabs samples, 96.62%, 99.76%, and 98.70%;; Throat swabs samples, 97.10%,99.76%,98.87%; (2)The consistency coefficient Kappa result of the diagnostic results between the assessment system and the reference system is below: Nasal swabs samples: Kappa（K）=0.9707 Throat swabs samples:Kappa（K）=0.9744 The assessment system can meet the current needs of clinical detection of the novel coronavirus 2019-nCoV antigen, and can be used to qualitatively detect the content of novel coronavirus 2019-nCoV antigen in human nasal swabs or throat swabs.
Report date	Aug.17th,2020

Acronyms

Novel Coronavirus 2019-nCoV : 2019-nCoV

Coronavirus disease ： COVID-19

Part 2. Summary of clinical research

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1.Clinical trial background

Coronaviruses are single-stranded positive-strand RNA viruses, divided into four genera: α, β, γ, and δ; The novel coronavirus 2019-nCoV is a new type of coronavirus, due to Wuhan virus pneumonia cases in 2019 It was found that it was named by the World Health Organization on January 12, 2020 and belongs to the genus β; the coronavirus S protein is located on the surface of the virus to form a rod-like structure, is one of the virus's main antigen proteins, and the S gene is the main gene for coronavirus typing ; The novel coronavirus 2019-nCoV can cause viral pneumonia. The clinical manifestations are fever and fatigue. Its respiratory symptoms are mainly dry cough, and gradually dyspnea appears. In severe cases, acute respiratory distress syndrome, septic shock, difficult to correct metabolic acidosis and coagulopathy.

This kit uses colloidal gold technology for the qualitative detection of the novel coronavirus 2019-nCoV antigen in human nasal swabs or throat swabs.

2.Purpose of clinical trials

The purpose of this clinical validation test is to investigate the accuracy of the Novel Coronavirus 2019-nCoV Antigen Test (Colloidal Gold) for detecting the novel coronavirus 2019-nCoV antigen in human nasal swabs or throat swabs. We select the diagnostic criteria for the diagnosis of Coronavirus disease (COVID-19) infection and the results of the disease process (real-time fluorescent RT-PCR detection of novel coronavirus 2019-nCoV nucleic acid results, virus gene sequencing comparison) as a comparative method for comparative research to assess the clinical performance of the Novel Coronavirus 2019-nCoV Antigen Test (Colloidal Gold) for detection of novel coronavirus 2019-nCoV antigen in human nasal swabs or throat swabs.

3.Management of clinical trials

(1) The main investigator is fully responsible for the entire clinical trial process, and the main participants are responsible for the experimental operation process and the authenticity and accuracy of the experimental data.

(2) Samples shall be collected, stored, and managed strictly in accordance with the requirements of the research sample before the test, and samples that do not meet the requirements during the experiment shall be excluded.

(3) During the test phase, operate strictly in accordance with the instructions.

(4) After the test is completed, the test data shall be sorted and verified in time to ensure the authenticity and accuracy of the data.

(5) Statistics of test data, which are used by special persons to make statistics on test data.

(6) No problems occurred during the entire clinical trial.

4. Clinical trial design

The clinical samples used in the trial are valid samples (nasal swabs and throat swabs) from clinical trial institutions (including CDCs at all levels), which are all remaining samples after testing, and all samples should be traceable to the corresponding clinical basic Information, including case number, age, gender, sample type, collection time, diagnosis or exclusion of Novel Coronavirus infection, etc. Please also specify the nucleic acid test results (including the name of the nucleic acid test reagent) used in the disease confirmation clinic.

4.1 Detection principle of clinical trial assessment system

This kit is based on the Colloidal gold immunochromatographic technology, and uses double antibody sandwich method to detect the novel coronavirus antigen in human throat swabs or nasal swabs. The detection line (T line) of the novel coronavirus antigen test cassette was coated with novel coronavirus antibody, and the quality control line (C line) was coated with sheep anti-mouse. During the test, the sample is dropped into the test cassette and the liquid is chromatographed upward under the capillary effect. The novel coronavirus antigen in the sample first binds to the Colloidal gold-labelled novel coronavirus antibody to form a solid phase novel coronavirus antibody-novel coronavirus antigen-labelled novel coronavirus antibody-Colloidal gold complex at the T line position, and form a solid phase sheep anti-mouse-labelled novel coronavirus antibody- Colloidal gold complex was formed at the C line position. after the test is completed, observe the Colloidal gold color reaction of T line and C line to determine results of novel coronavirus antigens in nasal swabs or throat swabs.

4.2 Establishment and modification of clinical trial protocol

The clinical trial plan is formulated by the applicant in consultation with the clinical trial institution before the clinical trial, and according to the clinical trial plan, the responsibilities of the applicant, the researcher, and the person in charge of statistics are clearly defined. The applicant organization organizes participation in the trial. All researchers have been trained in clinical trial protocols and use of in vitro diagnostic reagents for testing. This plan was modified once according to the content of "Novel Coronavirus Infected Pneumonia Diagnosis and Treatment Plan (Trial Version 3)". Prior to the implementation of clinical trials, pre-experimental evaluations were performed to ensure the accuracy of test detection.

4.3 Clinical trial methods

In this clinical trial, the diagnostic criteria for the diagnosis of Coronavirus disease (COVID-19) infection and the results of the disease process (real-time fluorescent RT-PCR detection of novel coronavirus 2019-nCoV nucleic acid results, virus gene sequencing comparison) were selected as comparative methods for comparative research. Test results on clinical case samples. Statistics and calculation of the detection coincidence rate of the two. The differential samples should be fully analyzed in combination with the patient's epidemiological background, clinical symptoms, and disease outcomes to assess the Novel Coronavirus 2019-nCoV Antigen Test (Colloidal Gold) produced by Beijing Hotgen Biotech Co., Ltd. qualitatively being used to test the clinical performance of the novel coronavirus 2019-nCoV antigen in human nasal swabs or throat swabs.

The clinical trials were conducted in five clinical institutions, Fifth Medical Center of General Hospital of Chinese People's Liberation Army,The Sixth People's Hospital of Shenyang,Institute of Microbiology and Epidemiology Academy of Military Medical Sciences,Peking Union Medical College Hospital Chinese Academy of Medical Sciences,PLA Third Medical Center. The test institutions have verified the clinical performance of the product, and the clinical trial has been completed.

4.4 Sample size and basis for determining sample size

This project is an in vitro diagnostic reagent that is urgently needed for public health emergencies. The clinical verification test is planned to be carried out in 3 or more clinical trial institutions (including disease prevention and control centers at all levels). The total number of cross-section

samples from different patients is not less than 500. The diagnostic criteria for the diagnosis of Coronavirus disease (COVID-19) infection and the results of the disease process (real-time fluorescent RT-PCR detection of novel coronavirus 2019-nCoV nucleic acid results, virus gene sequencing comparison) were used as a comparative method for comparative research with the assessment system to evaluate the clinical performance of the assessment system for human nasal swabs or throat swabs samples detection. Among them, the total number of cross-section samples from different patients who tested positive for novel coronavirus 2019-nCoV antigen were not less than 200, which meet the statistical requirements.

The confirmed cases should include patients with different clinical types (such as patients with mild, common, severe, and severe pneumonia), as well as patients with different disease processes (such as suspected cases, confirmed cases, release from isolation, and discharged patients, etc.). Definition of pneumonitis diagnosis and treatment plan for Novel Coronavirus infection (trial version 6). There should be a certain number of patients with different clinical types and different stages of the disease.

In addition, no fewer than 10 consecutive samples of pneumonia patients infected with the Novel Coronavirus at different times were included, including samples from each stage of the novel coronavirus 2019-nCoV nucleic acid and antigen / antibody from negative to positive. To evaluate the clinical performance of the assessment system for nasal swabs or throat swabs samples testing.

The number of cases mentioned above is the number of cases planned by the clinical trial institutions. In actual implementation, each clinical trial institution competes to collect the cases as long as the total number of cases can meet the requirements.

4.5 Sample selection basis, inclusion criteria, exclusion criteria, and exclusion criteria

4.5.1 Sample entry criteria

Collect, package, and ship with reference to the "Technical Guide for Laboratory Testing of Pneumonia of Novel Coronavirus Infection (Second Edition)" issued by the National Health Commission of the People’s Republic of China on January 22, 2020.

The patients samples (nasal swabs or throat swabs) collecting time is not exceding 7 days after clinical manifestations with a Novel Coronavirus infection in clinical institutions. Patients with different clinical types (such as patients with mild, common, severe, and severe pneumonia) and patients with different disease processes (such as suspected cases, confirmed cases, release from isolation, and discharged patients, etc.) were included. There should be a certain number of patients with different clinical types and different stages of the disease.

Sample collection, processing, and storage meet requirements; Samples information should be complete, including case number, age, gender, sample type, collection time, diagnosis or exclusion of Novel Coronavirus infection, etc. Please also specify the nucleic acid confirmation clinic test results used in the disease (including the name of the nucleic acid detection reagent).

4.5.2 Sample exclusion criteria

(1) Exclude patients with excessive rheumatoid factors such as lupus erythematosus, scleroderma, mixed connective tissue disease, Sjogren's syndrome, and rheumatoid arthritis;

(2) Samples that do not meet the entry criteria;

(3) Sample types that do not meet the test, such as severe hemolysis and lipemia samples;
(4) Do not meet the requirements for sample collection, processing and storage;
(5) The relevant information of the sample is incomplete;
(6) Samples whose sample size cannot meet the testing requirements;

4.5.3 Sample rejection criteria

(1) The sample is deteriorated;
(2) Samples that do not meet the sample entry criteria or meet the sample exclusion criteria but are still tested;

4.6 Sample collection, storage and transportation

4.6.1 Sample collection:

Nasal swab: The sampling staff hold a swab and stick into the nostril and goes back slowly along the bottom of the lower nasal canal., When the top of the swab reaches the posterior wall of the nasopharyngeal cavity, rotate gently around (if reflex cough, stay for a moment), and then slowly remove the swab.
Throat swab: Let the patient's head tilt slightly, mouth open, and make "ah" sounds, exposing the pharyngeal tonsils on both sides. Hold the swab and wipe the pharyngeal tonsils on both sides of the patient with a little force back and forth at least 3 times. Then wipe up and down the Posterior pharyngeal wall at least 3 times .

4.6.2 Sample treatment

(1) Add 6 drops of sample extraction buffer into the sampling tubes.
(2) The swab after sampling is soaked below the liquid level of the sampling tube, rotated and pressing 3 times, the swab soaking time is not less than 15 s, the swab head is pressed, then taken out the swab and tighten the sampling tube. The liquid in the tube is the sample after treatment.

4.6.3 Sample preservation

The sample of treated should be tested within 1 hour. Specimens that can not be detected within 24 hours should be kept at -70℃ or below. Repeated freezing and thawing should be avoided during specimen transportation. Specimen collection should be sent to the laboratory as soon as possible, If it is necessary to transport the specimen for a long distance, it is recommended to preserve the specimen by refrigeration such as dry ice.

4.6.4 Transportation method

According to the "Guidelines for the Management of Cold Chains (Transportation and Storage) of Medical Devices", "Pneumonitis Diagnosis and Treatment Scheme for Novel Coronavirus Infection (Trial Version)", "Technical Guide for Laboratory Testing of Pneumonia in Novel Coronavirus Infection (Second Edition)" transport.

4.7 Establishment of a reference system

We selected the diagnostic criteria for the diagnosis of Coronavirus disease (COVID-19) infection and the results of the disease process as a reference system for a comparative study to evaluate the clinical performance of the assessment system for nasal swabs or throat swabs samples testing.

4.8 Information on clinical test kits and instruments

(1) Assessment system: Novel Coronavirus 2019-nCoV Antigen Test (Colloidal Gold), the kit size

is 40T/kit. Valid for 18 months.

(2) Reference system: the diagnostic criteria for the diagnosis of Coronavirus disease (COVID-19) infection and the results of the disease process (real-time fluorescent RT-PCR detection of novel coronavirus 2019-nCoV nucleic acid results, virus gene sequencing comparison).

4.9 Case distribution by centres

The whole research is carried out in five clinical research institutions. The specific case number is planned to be distributed as follows:

Distribution of samples by clinical centers

Clinical institution name	Negative nasal swabs samples	Positive nasal swabs samples	Total
The Fifth Medical Center of the General Hospital of the Chinese People's Liberation Army	86	50	136
The Sixth People's Hospital of Shenyang	80	19	99
Institute of Microbiology Epidemiology Academy of Military Medical Sciences	76	43	119
Peking Union Medical College Hospital Chinese Academy of Medical Sciences	89	55	144
PLA Third Medical Center	79	40	119
Total	410	207	617

4.10 Quality control methods

(1) Select and manage samples strictly in accordance with the requirements of research samples, and samples that do not meet the requirements during the experiment should be excluded;

(2) The clinical trial testing process is strictly performed in accordance with the requirements of the kit instructions;

(3) truthfully, detailed, timely, and carefully record all content to ensure that the content of the test record form is complete, true, reliable, and traceable;

(4) Invalid results due to the kit or other reasons should be re-tested;

(5) When the retesting of the sample occurs due to human error operation, instrument failure, and sample addition failure, the retesting result shall prevail, and the reason for retesting shall be indicated.

5. Evaluation method

Collect the samples test results of both assessment system and the reference system which were the diagnostic criteria for the diagnosis of Coronavirus disease (COVID-19) infection and the results of the disease process (real-time fluorescent RT-PCR detection of novel coronavirus 2019-nCoV nucleic acid results, virus gene sequencing comparison). The results are analyzed and compared, and the results of the assessment system and the reference system are compared using a grid table method, and the positive coincidence rate, negative coincidence rate, and total coincidence rate of the two are calculated to evaluate the Novel Coronavirus 2019-nCoV

Antigen Test (Colloidal Gold) produced by Beijing Hotgen Biotech Co., Ltd. being used for the qualitative detection in nasal swabs or throat swabs. For differential samples, it should be fully analyzed combining with the patient's epidemic information such as academic background, clinical symptoms, and disease outcomes.

(1) The total coincidence rate of the diagnosis results of the assessment system and the reference system should be greater than 80%.

(2) The consistency coefficient Kappa (K) of the diagnostic results ofthe assessment system and the reference system should be greater than 0.75.

6. Statistical methods

（1）Calculation of the coincidence rate of the diagnostic results of the assessment system and the reference system:

Positive coincidence rate：A/（A+C）×100%=

Negative compliance rate：D/（B+D）×100%=

Total compliance rate：（A+D）/（A+B+C+D）×100%=

Assessment system Novel Coronavirus 2019-nCoV Antigen Test (Colloidal Gold)	Reference system (clinical diagnostic results)		
	Positive（+）	Negative（—）	Total
Positive（+）	A	B	A+B（R1）
Negative（—）	C	D	C+D（R2）
Total	A+C（C1）	B+D（C2）	A+B+ C+D（N）

（2）Calculation of the Kappa (K) value of the consistency coefficient Kappa（K） between the assessment system and the reference system：

Kappa（K）=[N（A+D）—（R1C1+R2C2）] /[N2—（R1C1+R2C2）]

7. Statistical analysis results

A total of 617 samples were tested in this test, and the results of nasal swabs samples and throat swabs samples were analyzed statistically.

7.1 Calculation of the coincidence rate of the diagnostic results of the assessment system and the reference system

(1) human nasal swabs

Assessment system Novel Coronavirus 2019-nCoV Antigen Test(Colloidal Gold)	Reference system (clinical diagnostic results)		
	Positive（+）	Negative（—）	Total
Positive（+）	200	1	201
Negative（—）	7	409	416
Total	207	410	617

Positive coincidence rate：A/（A+C）×100%=96.62%（95%CI：93.16%～98.63%）

Negative compliance rate：D/（B+D）×100%=99.76%（95%CI：98.65%～99.99%）;

Total compliance rate:（A+D）/（A+B+C+D）×100%=98.70%（95%CI:97.46%～99.44%）;

(2) human throat swabs

Assessment system Novel Coronavirus 2019-nCoV Antigen Test (Colloidal Gold)	Reference system (clinical diagnostic results)		
	Positive（+）	Negative（—）	Total
Positive（+）	201	1	202
Negative（—）	6	409	415
Total	207	410	617

Positive coincidence rate：A /（A+C）×100%=97.10%%(95% CI：93.80%～98.93%);

Negative compliance rate：D /（B+D）×100%=99.76% (95% CI：98.65%～99.99%)

Total compliance rate：（A+D）/（A+B+C+D）×100%=98.87% (95% CI：97.68%～99.54%);

7.2 Calculation of consistency coefficient Kappa (K) value of diagnostic results between the test reagent and the reference system

(1) in human nasal swabs

Kappa（K）=[N（A+D）—（R1C1+R2C2）] /[N2—（R1C1+R2C2）]=0.9707;

(2) in human throat swabs

Kappa（K）=[N（A+D）—（R1C1+R2C2）] /[N2—（R1C1+R2C2）]=0.9744.

8. Discussion and conclusions

This project is an in vitro diagnostic reagent that is urgently needed for public health emergencies. By Aug.13th,2020, the reserch reports have been approved by Fifth Medical Center of General Hospital of Chinese People's Liberation Army, The Sixth People's Hospital of Shenyang,Institute of Microbiology and Epidemiology Academy of Military Medical Sciences,Peking Union Medical College Hospital Chinese Academy of Medical Sciences,PLA Third Medical Center. A total of 617 nasal swabs and throat swabs samples were tested in this research. The results of the comparative research between Novel Coronavirus 2019-nCoV Antigen Test (Colloidal Gold) produced by Beijing Hotgen Biotech Co., Ltd. and the diagnostic criteria for the diagnosis of Coronavirus disease (COVID-19) infection and the results of the disease process (real-time fluorescent RT-PCR detection of novel coronavirus 2019-nCoV nucleic acid results, virus gene sequencing comparison), showed that:

among 207 cases of the novel coronavirus 2019-nCoV positive nasal swabs samples, 200 cases nasal swabs samples were detected positive by Novel Coronavirus 2019-nCoV Antigen Test(Colloidal Gold), and the positive coincidence rate for nasal swabs samples was 96.62%（200/207); Among 410 cases of clinically negative nasal swabs samples of the the novel coronavirus 2019-nCoV, 409 cases nasal swabs samples were detected negative by Novel Coronavirus 2019-nCoV Antigen Test(Colloidal Gold) and the negative coincidence rate for nasal swabs samples was 99.76% (409/410); The consistency Kappa values of the nasal swabs samples was: 0.9707.

among 207 cases of the novel coronavirus 2019-nCoV positive throat swabs samples, 201 cases throat swabs samples were detected positive by Novel Coronavirus 2019-nCoV Antigen Test (Colloidal Gold), and the positive coincidence rate for throat swabs samples was

97.10%（201/207); Among 402 cases of clinically negative throat swabs samples of the the novel coronavirus 2019-nCoV, 409 cases throat swabs samples were detected negative by Novel Coronavirus 2019-nCoV Antigen Test (Colloidal Gold) and the negative coincidence rate for throat swabs samples was 99.76% (409/410); The consistency Kappa values of the throat swabs samples was: 0.9744.

Based on the above analysis, the detection quality of the Novel Coronavirus 2019-nCoV Antigen Test (Colloidal Gold) for nasal swabs and throat swabs samples has reached the current level of clinical use.

Certificate of Analysis

Applicant:

Beijing Hotgen Biotech Co., Ltd.

Product Name:

Novel Coronavirus 2019-nCOV Antigen Test (Colloidal Gold)

Package: 40T/Kit

Date of Test: 18/01/2021

Date of Issue: 29/01/2021

Tested by: Ai Yuxin

生物应急与临床POCT
北京市重点实验室

Reviewed by: Xiao Ruifang

Approved by: Zhang Jun

Basic information

Product	Novel Coronavirus 2019-nCOV Antigen Test (Colloidal Gold)		
Manufacturer	Beijing Hotgen Biotech Co., Ltd.		
Lot	W20201201	**Package**	40T/Kit
Mfg.Date	2020/12/13	**Exp.Date**	2022/06/13
PCR protocol	Detection Kit for 2019 Novel Coronavirus (2019-nCoV) RNA (PCR-Fluorescence Probing) produced by Da An Gene Co., Ltd.of Sun Yat-sen University (WHO EUL listed PCR test)		

Performance Indicators

Test Items

Diagnostic Sensitivity

Test Methods and Results

Methods:

Parallel examination of diagnostic PCR tests and antigen tests in throat swabs, nasal swabs and saliva specimens from 125 persons with COVID-19 symptoms within seven days after onset of symptoms. Calculate the diagnostic sensitivity and 95% confidence interval (95%CI).

Acceptable criteria:

>80% of at least 100 unselected PCR-positive samples, positive in the SARS-CoV-2-rapid antigen test.

Results:

Item	nasal swabs	Throat swabs	saliva
Sensitivity 95% CI	97.60% 93.15%~99.50%)	96.80% 92.01% ~ 99.12%	96.80% 92.01%~99.12%
for the antigen positive samples: Mean Ct, n	23.85,122	23.42,121	22.95, 121
Sensitivity Ct ≤ 33, n	97.60% ,125	96.80% ,125	96.80% ,125
Sensitivity Ct ≤ 25, n	100%,100	100%,100	100%,100
Consistency between the diagnostic PCR tests and antigen tests	Excellent	Excellent	Excellent

Diagnostic Specificity

Methods:

Examinations of 134 asymptomatic persons without a concrete risk of exposure in the rapid SARS-CoV2 antigen test; clarification of any reactive samples by means of PCR. Calculate the diagnostic specificity and 95% confidence interval (95%CI).

Acceptable criteria:

Specificity >97%.

Results:

Item	nasal swabs	Throat swabs	saliva
Specificity 95% CI	99.25% (95.91% ~ 99.98%)	99.25% (95.91% ~ 99.98%)	99.25% (95.91% ~ 99.98%)
Negative samples by means of PCR	134	134	134
Consistency between the diagnostic PCR tests and antigen tests	Excellent	Excellent	Excellent

Cross-Reactivity

Methods:

1. Prepare the cross-reactivity samples listed in below Table.
2. Use the Antigen Test to test the cross-reactive samples, and repeat the test three times for each specimen.

Acceptable criteria:

The test results of the the following cross-reactivity substances are negative.

Results:

No.	Cross-reactivity substance	Strain	Concentration of cross-reactivity substance	Test results		
				1	2	3
1	Human Coronavirus	HKU1	2×10^5 $TCID_{50}$/mL	-	-	-
2		229E	2×10^5 $TCID_{50}$/mL	-	-	-
3		OC43	2×10^5 $TCID_{50}$/mL	-	-	-
4		NL63	2×10^5 $TCID_{50}$/mL	-	-	-
5		SARS	2×10^5 $TCID_{50}$/mL	-	-	-
6		MERS	2×10^5 $TCID_{50}$/mL	-	-	-

The above-mentioned interfering substances have no cross-interference with the antigen test kit.

Interference

Methods:

1. Prepare the cross-reactivity samples listed in below Table.
2. Use the Antigen Test to test the cross-reactive samples, and repeat the test three times for each specimen.

Acceptable criteria:

The test results of the the following substances are negative.

Results:

No.	Cross-reactivity substance	Strain	Concentration of cross-reactivity substance	Test result		
				1	2	3
1	Adenovirus	Type 1	2×10^5 $TCID_{50}$/mL	-	-	-
2		Type 2	2×10^5 $TCID_{50}$/mL	-	-	-
3		Type 3	2×10^5 $TCID_{50}$/mL	-	-	-
4		Type 4	2×10^5 $TCID_{50}$/mL	-	-	-
5		Type 5	2×10^5 $TCID_{50}$/mL	-	-	-
6		Type 7	2×10^5 $TCID_{50}$/mL	-	-	-
7		Type 55	2×10^5 $TCID_{50}$/mL	-	-	-
8	Human Metapneumovirus (hMPV)	hMPV 3 Type B1 / Peru2-2002	2×10^5 $TCID_{50}$/mL	-	-	-
9		hMPV 16 Type A1 / IA10-2003	2×10^5 $TCID_{50}$/mL	-	-	-
10	Parainfluenza virus	Type 1	2×10^5 $TCID_{50}$/mL	-	-	-
11		Type 2	2×10^5 $TCID_{50}$/mL	-	-	-
12		Type 3	2×10^5 $TCID_{50}$/mL	-	-	-
13		Type 4A	2×10^5 $TCID_{50}$/mL	-	-	-
14	Influenza A	H1N1	2×10^5 $TCID_{50}$/mL	-	-	-
15		H3N2	2×10^5 $TCID_{50}$/mL	-	-	-
16		H5N1	2×10^5 $TCID_{50}$/mL	-	-	-
17		H7N9	2×10^5 $TCID_{50}$/mL	-	-	-
18	Influenza B	Yamagata	2×10^5 $TCID_{50}$/mL	-	-	-
19		Victoria	2×10^5 $TCID_{50}$/mL	-	-	-
20	Enterovirus	Type 68	2×10^5 $TCID_{50}$/mL	-	-	-
21		09/2014 isolate 4	2×10^5 $TCID_{50}$/mL	-	-	-
22	Respiratory syncytial virus	Type A	2×10^5 $TCID_{50}$/mL	-	-	-
23		Type B	2×10^5 $TCID_{50}$/mL	-	-	-
24	Rhinovirus	A16	2×10^5 $TCID_{50}$/mL	-	-	-
25		Type B42	2×10^5 $TCID_{50}$/mL	-	-	-
26	Chlamydia pneumoniae	TWAR strain TW-183	5×10^6 CFU/mL	-	-	-

POCT 验室

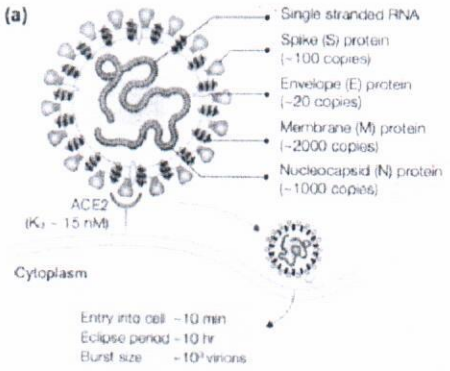
27	Haemophilus influenzae	NCTC 4560	5×10^6 CFU/mL	-	-	-
28	Legionella pneumophila	Bloomington-2	5×10^6 CFU/mL	-	-	-
29		Los Angeles-1	5×10^6 CFU/mL	-	-	-
30		82A3105	5×10^6 CFU/mL	-	-	-
31	Mycobacterium tuberculosis	K	5×10^6 CFU/mL	-	-	-
32		Erdman	5×10^6 CFU/mL	-	-	-
33		HN878	5×10^6 CFU/mL	-	-	-
34		CDC1551	5×10^6 CFU/mL	-	-	-
35		H37Rv	5×10^6 CFU/mL	-	-	-
36	Streptococcus pneumonia	4752-98 [Maryland (D1)6B-17]	5×10^6 CFU/mL	-	-	-
37		178 [Poland 23F-16]	5×10^6 CFU/mL	-	-	-
38		262 [CIP 104340]	5×10^6 CFU/mL	-	-	-
39		Slovakia 14-10 [29055]	5×10^6 CFU/mL	-	-	-
40	Streptococcus pyrogenes	Typing strain T1 [NCIB 11841, SF 130]	5×10^6 CFU/mL	-	-	-
41	Bordetella pertussis	NCCP 13671	5×10^6 CFU/mL	-	-	-
42	Mycoplasma pneumoniae	Mutant 22	5×10^6 CFU/mL	-	-	-
43		FH strain of Eaton Agent [NCTC 10119]	5×10^6 CFU/mL	-	-	-
44		M129-B7	5×10^6 CFU/mL	-	-	-
45	Pneumocystis jirovecii (PJP)	N/A	N/A	-	-	-
46	Pooled human nasal wash	N/A	N/A	-	-	-
47	Candida albicans	3147	5×10^6 CFU/mL	-	-	-
48	Pseudomonas aeruginosa	R. Hugh 813	5×10^6 CFU/mL	-	-	-
49	Staphylococcus epidermidis	FDA strain PCI 1200	5×10^6 CFU/mL	-	-	-
50	Streptococcus salivarius	S21B [IFO 13956]	5×10^6 CFU/mL	-	-	-
51	Staphylococcus aureus	Seattle1945	5×10^6 CFU/mL	-	-	-

Through the above experiments, it is proved that the endogenous interfering substances and exogenous interfering substances have no influence on the test results of this kit.

Notice on detection of Novel Coronavirus variant in UK

Recently, the transmission capacity of the coronavirus in the United Kingdom has increased by 70%, which makes it more difficult to prevent and control the coronavirus in the world. This mutation mainly includes 69-70 deletion, 144-145 deletion, N501Y, A570D, D614G, P681H, T716I, S982A, D1118H and D796H. All of them were in the gene that encodes spike, a protein on the viral surface that the pathogen uses to enter human cells[1,2].

The Novel Coronavirus 2019-nCov antigen test (Colloidal Gold) developed and produced by Beijing hotgen Biotech Co., Ltd. is a reagent for the detection of viral N protein. The nucleocapsid of virus is formed by entangle of N protein and viral genomic RNA, which plays a critical role in viral RNA replication[3]. The nucleocapsid (N) protein is one of the predominantly expressed proteins with high immunogenicity during the early stages of infection. At the same time, N protein is relatively conservative, the detection sensitivity of N protein is the highest. A comparison of detecting SARS-CoV RNA, specific IgG, and N protein during the early period of illness showed that the detection capability of N protein was notably higher than the other two indicators[4]. Therefore, all the Novel Coronavirus mutant strains are S- protein mutation, which has no impact on the sensitivity and specificity of our Novel Coronavirus N protein detection reagent.



[1] Kupferschmidt K. Fast-spreading U.K. virus variant raises alarms. Science 01 Jan 2021: Vol. 371, Issue 6524, pp.9-10. DOI: 10.1126/science.371.6524.9.

[2] Hou YJ, Chiba S, Halfmann P, et al. Science 18 Dec 2020: Vol. 370, Issue 6523, pp. 1464-1468. DOI: 10.1126/science.abe8499.

[3] McBride R, Van ZM, Fielding BC. The coronavirus nucleocapsid is a multifunctional protein. Viruses. 2014;6:2991-3018.

[4] Li YH, Li J, Liu XE, et al. Detection of the nucleocapsid protein of severe acute respiratory syndrome coronavirus in serum: comparison with results of other viral markers. J Virol Methods. 2005;130:45-50.

Zhang Jing

Beijing Hotgen Biotech Co.,Ltd

2021-1-4

Date: April 19, 2021

Letter of Authorization

Authorized Company:

ASID BONZ GmbH

ADDRESS: Hertzstr. 3, 71083 Herrenberg, Germany (hereinafter " **A** ")

Authoriser, Manufacturer:

Beijing Hotgen Biotech Co. Ltd

ADDRESS: 9 building, No.9 Tianfu street, Daxing District, Beijing, 102600, P.R. China. (hereinafter "**Hotgen**")

This is to designate **ASID BONZ GmbH** as our distributor on HOTGEN Brand to represent HOTGEN to distribute:

1. Novel Coronavirus 2019-nCoV Antigen Test (Colloidal Gold) for professional use (BfArM-Test-ID AT282/21) in Germany.

2. Coronavirus(2019-nCoV)-Antigentest- for self-testing use (special approval BfArM no. 5640-S-057/21) in Germany.

The details are described as follows:

1. This authorization is valid for a period from April 19th, 2021 to April 18th , 2022

2. This authorization can be renewed on mutual approval.

Name: Lin Changsong

Designation:
Beijing Hotgen Biotech Co., Ltd.

DAkkS
Deutsche
Akkreditierungsstelle
D-ZM-11321-01-00

Product Service

Certificate

No. Q5 089675 0005 Rev. 01

Holder of Certificate: **Beijing Hotgen Biotech Co.,Ltd**
9th Building, No. 9 Tianfu Street, Biomedical Base
Daxing District
102600 Beijing
PEOPLE'S REPUBLIC OF CHINA

Facility(ies): Beijing Hotgen Biotech Co.,Ltd
9th Building, No. 9 Tianfu Street, Biomedical Base, Daxing District,
102600 Beijing, PEOPLE'S REPUBLIC OF CHINA

Certification Mark:

TÜV SÜD
EN ISO 13485
tuv-sud.com/ps-cert

Scope of Certificate: **Design and Development, Production, Distribution and Service of Automated Immunoassay Analyzer, Up-converting Phosphor Immunoassay Analyzer, Up-converting Phosphor Technology Test Kits, Colloidal Gold Test Kits, Chemiluminescence Immunoassay Test Kits, Enzyme-Linked Immunoassay Test Kits.**

Applied Standard(s): EN ISO 13485:2016
Medical devices - Quality management systems - Requirements for regulatory purposes
(ISO 13485:2016)
DIN EN ISO 13485:2016

The Certification Body of TÜV SÜD Product Service GmbH certifies that the company mentioned above has established and is maintaining a quality management system, which meets the requirements of the listed standard(s). All applicable requirements of the testing and certification regulation of TÜV SÜD Group have to be complied with. For details and certificate validity see:
www.tuvsud.com/ps-cert?q=cert:Q5 089675 0005 Rev. 01

Report No.: BJ20071201

Valid from: 2020-12-05
Valid until: 2023-12-04

Date, 2020-09-01

Christoph Dicks
Head of Certification/Notified Body

TÜV SÜD Product Service GmbH • Certification Body • Ridlerstraße 65 • 80339 Munich • Germany

TÜV®

ZERTIFIKAT ◆ CERTIFICATE ◆ 認證證書 ◆ СЕРТИФИКАТ ◆ CERTIFICADO ◆ CERTIFICAT
TÜV SÜD

Zertifiziervertrag
Grundlage für die Zertifikatserteilung ist die Prüf- und Zertifizierordnung der TÜV SÜD Gruppe.
Mit Erhalt des Zertifikates erkennt der Zertifikatsinhaber die jeweils gültige Fassung der Prüf- und Zertifizierordnung an (www.tuvsud.com/ps-zert) und wird somit Partner im Zertifiziersystem der TÜV SÜD Gruppe.

Prinzipielle Voraussetzung für die Gültigkeit des Zertifikates:
- Gültigkeit der zitierten normativen Prüfgrundlage(n) ist gegeben

und zusätzlich bei Zertifikaten mit Berechtigung zur Verwendung eines Prüfzeichens bzw. bei Zertifikaten für QM-Systeme:
- Voraussetzungen für vorschriftsmäßige Fertigung werden eingehalten.
- Die Fertigungs- bzw. Betriebsstätten werden regelmäßig überwacht.

Certification contract
Certification is based on the Testing and Certification Regulations of TÜV SÜD Group.
On receipt of the certificate the certificate holder agrees to the current version of the Testing and Certification Regulations (www.tuvsud.com/ps-cert) and thus becomes partner in the Certification System of TÜV SÜD Group.

Requirements for the validity of the certificate in principle:
- Validity of the quoted test standard(s)

In addition, for certificates with the right to use a certification mark and for QM certificates:
- Conditions for an adequate manufacturing are maintained
- Regular surveillance of the facility is performed

认证合约
认证基于 TÜV SÜD 集团《测试及认证准则》。
获得证书即表明证书持有者接受当前版本的《测试及认证准则》（见 www.tuvsud.com/ps-cert）并成为 TÜV SÜD 集团认证系统内的合作伙伴。

维持证书有效性的原则要求：
- 认证所依据标准的有效性

此外，对于授权可使用认证标志的证书和质量管理体系证书：
- 保持充分的生产条件
- 生产场地通过定期的监督

認証契約
認証は TÜV SÜD Group の試験認証規約に基づく。
認証書保持者は認証書を受領することにより最新の試験認証規約(www.tuvsud.com/ps-cert)に同意したものとする。
その結果、TÜV SÜD Group 認証システムのパートナーとなる。

認証書の有効性に関する原則的な要求事項
- 引用している試験規格が有効である

さらに認証マークの使用を許諾された認証書や品質マネジメント認証書は：
- 適切な製造の条件を維持している
- 定期的な工場監査を実施している

Contrato de certificação
A certificação se baseia nos Regulamentos de Testes e Certificação do Grupo TÜV SÜD.
Ao receber o certificado, o Fornecedor, titular do certificado concorda com a versão atual dos Regulamentos de Testes e Certificação do Grupo TÜV SÜD (www.tuvsud.com/ps-cert) e assim, torna-se parceiro no Sistema de Certificação do Grupo TÜV SÜD.

Requisitos para a validade do certificado (em princípio):
- Validade da(s) norma(s) de ensaio(s) referenciada(s).

Adicionalmente, para os certificados com o direito ao uso da marca de certificação e para certificados de SG:
- Condições de fabricação adequada estão mantidas.
- Auditoria de monitoração realizada regularmente.

A4 / Digital / 05.20

Hotgen

Declaration of Conformity

Manufacturer:	Beijing Hotgen Biotech Co.,Ltd. 9th building, No.9 Tianfu Street, Biomedical Base, Daxing District, Beijing,102600, P.R.China
European Representative:	MedNet GmbH Borkstrasse 10,48163 Muenster,Germany
Product Name:	Novel Coronavirus 2019-nCoV Antigen Test (Colloidal Gold)
Analyte:	Protein Antigen of 2019-nCoV
Brand name:	Hotgen Biotech, CORA CHECK-19

Model	Trade name	Contains
Model A	Novel Coronavirus 2019-nCoV Antigen Test (Colloidal Gold)	1. Novel Coronavirus Antigen Test Cassette 2. Sample extraction buffer 3. Disposable virus sampling swab
Model B	Novel Coronavirus 2019-nCoV Antigen Test (Colloidal Gold)	1. Novel Coronavirus Antigen Test Cassette 2. Sample extraction buffer 3. Disposable virus sampling swab 4. Novel coronavirus 2019-nCoV Antigen Quality Control
Model C	Novel Coronavirus 2019-nCoV Antigen Test (Colloidal Gold) - Saliva	1. Novel Coronavirus Antigen Test Cassette 2. Sample extraction buffer 3. Saliva collector 4. Biohazard specimen bag
Model D	Novel Coronavirus 2019-nCoV Antigen Test (Colloidal Gold) - Saliva	1. Novel Coronavirus Antigen Test Cassette 2. Sample extraction buffer 3. Saliva collector 4. Biohazard specimen bag 5. Novel coronavirus 2019-nCoV Antigen Quality Control

Classification : **Others of ANNEX II of IVDD**

Conformity Assessment Route: **Annex III**

We, Beijing Hotgen Biotech Co., Ltd., herewith declare on our solo responsiblity that the above mentioned products meet the transposition into national law, the provisions of the following EC Council Directives and Standards. All supporting documentations are retained under the premises of the manufacturer.

General applicable directives:

In Vitro Diagnostic Medical Devices DIRECTIVE 98/79/EC

Harmonized standards:

EN ISO 13485:2016;
EN ISO 15223-1:2016;
EN ISO 14971:2012;
EN 13975:2003;
EN ISO 18113-1:2011;

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EN ISO 18113-2:2011;
EN 13612:2002;
EN ISO 17511:2003;
EN ISO 23640:2015;
EN 13641:2002;
EN 13975:2003;
EN 62366:2008.

Signature:
Name: Lin Changqing
Title: General manager

Place: Beijing, China.
Date of Issue: January 11, 2021