

INSTRUCTION FOR USE

INTRODUCTION

In December 2019, the novel respiratory disease (COVID-19) caused by the coronavirus (SARS-CoV-2) was reported in Wuhan, China.^{1,2} According to WHO, most of the people infected with SARS-CoV-2 have mild to moderate symptoms such as fever, cough, and shortness of breath, as well as the loss of taste and smell. In severe cases, such as the elderly or people with previous illnesses (e.g. cardiovascular disease, diabetes, chronic respiratory diseases, cancer, etc.) are more likely to develop a serious illness that can lead to the death of the infected person.

This rapid test kit is intended for the qualitative detection of SARS-CoV-2 viral nucleocapsid antigens from anterior nasal swabs. Positive result of the antigen test can be used for early isolation of patients with suspected infection, but it cannot be used as a diagnosis basis of SARS-CoV-2 infection. Negative results do not rule out SARS-CoV-2 infection and should not be used as the sole basis for treatment. Further population whose antigen test result is positive or negative.

This kit is an immunochromatography assay, which detects SARS-CoV-2 nucleocapsid antigen in the samples with the help of the double antibody sandwich method. If there is virus antigen presence in the sample, it binds with the corresponding colloidal gold antibody. This complex is captured by the nitrocellulose membrane at the test line (T). This creates a visible red line, which indicates a positive result. However, if the sample does not contain any antigen, then the complex cannot be formed and thus no reddish line forms in the test line (T). Regardless of whether the sample contains virus antigen, a control line (C) always forms in the control line (C).

KIT COMPONENTS

- 1 test cassette (SARS-CoV-2 Ag)
- 1 sample tube with pre-filled sample extraction buffer
- 1 instruction for use
- Additionally required materials:
- 1 timer

TEST PREPARATION

Let test cassettes and test components stand at a room temperature (15°C to 27°C) for 15 minutes before use. Lay all the supplied materials on a clean, dry and flat surface.

TEST PERFORMANCE

Read the instructions for use completely before performing the test. A step-by-step instruction is given on the next page and describes the test procedure.

EVALUATION OF TEST RESULTS

To read the test results, simply determine whether a line is present or absent at the Control (C) position. It does not matter how strong or weak a Control line (C) is.

PERFORMANCE CHARACTERISTICS

1. Sensitivity and Specificity

| | HR-CT | | Total |
|--------------|------------|------------|------------|
| | Positive | Negative | |
| SARS-CoV-2 | 146 | 1 | 147 |
| Rapid Test | 4 | 149 | 153 |
| Total | 150 | 150 | 300 |

Sensitivity: 97.3% (95% CI: 94.2-99.2%)
Specificity: 99.3% (95% CI: 98.9-99.8%)
95% Confidence Interval

2. Limit of detection:

| LOD concentration | 30 TCD ₅₀ /mL |
|-------------------|--------------------------|
| 100% (n=10) | 10/10 |
| 50% (n=10) | 10/10 |
| 25% (n=10) | 10/10 |
| 12.5% (n=10) | 10/10 |
| 6.25% (n=10) | 10/10 |
| 3.125% (n=10) | 10/10 |
| 1.56% (n=10) | 10/10 |
| 0.78% (n=10) | 10/10 |
| 0.39% (n=10) | 10/10 |
| 0.19% (n=10) | 10/10 |
| 0.09% (n=10) | 10/10 |
| 0.04% (n=10) | 10/10 |
| 0.02% (n=10) | 10/10 |
| 0.01% (n=10) | 10/10 |

3. Cross-reactivity
No cross-reactivity was observed with following potential pathogens

| Potential pathogens | concentration | cross-reactivity (Yes/No) |
|--|--|---------------------------|
| Human Coronavirus 229E (beta-influenza) | 1.0 x 10 ⁷ TCID ₅₀ /mL | No |
| Human Coronavirus OC-43 (beta-influenza) | 1.0 x 10 ⁷ TCID ₅₀ /mL | No |
| Human Coronavirus NL63 | 1.0 x 10 ⁷ TCID ₅₀ /mL | No |
| Adenovirus | 1.0 x 10 ⁷ TCID ₅₀ /mL | No |
| Human Metapneumovirus | 1.0 x 10 ⁷ TCID ₅₀ /mL | No |
| Parainfluenza virus 1 | 1.0 x 10 ⁷ TCID ₅₀ /mL | No |
| Parainfluenza virus 2 | 1.0 x 10 ⁷ TCID ₅₀ /mL | No |
| Parainfluenza virus 3 | 5.2 x 10 ⁷ TCID ₅₀ /mL | No |
| Parainfluenza virus 4 | 1.6 x 10 ⁷ TCID ₅₀ /mL | No |
| Influenza A | 2.5 x 10 ⁷ TCID ₅₀ /mL | No |
| Influenza B | 2.9 x 10 ⁷ TCID ₅₀ /mL | No |
| Enterovirus | 4.0 x 10 ⁷ TCID ₅₀ /mL | No |
| Reovirus | 4.0 x 10 ⁷ TCID ₅₀ /mL | No |
| Respiratory syncytial virus | 1.3 x 10 ⁷ PFU/mL | No |
| Rhinovirus | 4.5 x 10 ⁷ PFU/mL | No |
| SARS-coronavirus | 1.5 x 10 ⁷ TCID ₅₀ /mL | No |
| MERS-coronavirus | 1.4 x 10 ⁷ CFU/mL | No |
| Hemophilus influenzae | 1.0 x 10 ⁷ CFU/mL | No |
| Streptococcus pneumoniae | 1.0 x 10 ⁷ CFU/mL | No |
| Streptococcus pyogenes | 1.6 x 10 ⁷ CFU/mL | No |
| Cardiobacterium | 1.8 x 10 ⁷ CFU/mL | No |
| Grouped human nasal wash | 100% | No |
| Bordetella pertussis | 1.4 x 10 ⁷ CFU/mL | No |
| Mycoplasma pneumoniae | 1.0 x 10 ⁷ CFU/mL | No |
| Chlamydia pneumoniae | 1.0 x 10 ⁷ CFU/mL | No |
| Legionella pneumophila | 1.0 x 10 ⁷ CFU/mL | No |

4. Interfering
Common interfering substances in the sample, such as blood, mucus, and pus, have no effect on the test results.

WARNINGS AND IMPORTANT INFORMATION

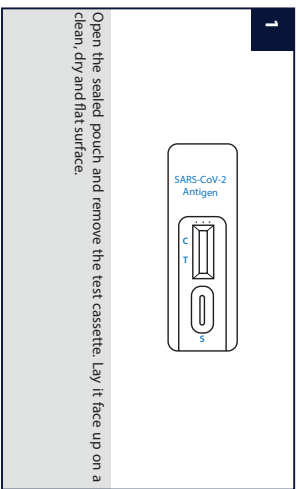
- This kit is a qualitative detection, which cannot determine the exact content of antigen.
- The test is intended for use outside the body only.
- Not to be taken internally. Avoid sample buffer contact with skin and eyes.
- Keep out of the reach of children. Any child under age 10 should be supervised by a parent or professional guide.
- Protection from sunlight, do not freeze. Store in a dry place between 2°C and 30°C. Do not use after the expiration date printed on the package.
- Do not follow the exact instructions can affect the outcome of the test. The final diagnosis must be confirmed by a physician.
- Do not use the test if the packaging is damaged. Do not use broken test components.
- All test components are only intended to be used for this test. Do not reuse the test or test components.
- The test should be carried out immediately or within one hour after opening the foil pouch (20-30°C, humidity <60%).
- Samples be processed as soon as possible after sample collection. If the test cannot be performed immediately, the sample should be stored in a sealed state, stored at 2-8°C and used within 30 days after the expiration date. Long-term storage is not recommended.
- Poor vision, color blindness or poor lighting may affect your ability to interpret the test correctly.
- Refer to the local regulation in force regarding the disposal of the test components.
- A negative result does not rule out the infection of a SARS-CoV-2 infection. Therefore, the test should not be used as the only reference for the clinical diagnosis. The result must be confirmed by the PCR.
- The test is not validated on specimens from pregnant women.

LITERATURE

- 1) Nishiura H, Miyama T, Suzuki M, Jung SM, Hayashi K, Hara K, et al. First cases of 2019 novel coronavirus (2019-nCoV) infection in Japan: temporal and spatial dissemination. *JAMA*. 2020;323(10):1015-1025.
 - 2) World Health Organization. (Coronavirus disease 2019) [https://www.who.int/emergencies/diseases/novel-coronavirus-2019/technical-guidance/naming-the-coronavirus-disease-\(covid-2019\)-and-the-virus-that-causes-it](https://www.who.int/emergencies/diseases/novel-coronavirus-2019/technical-guidance/naming-the-coronavirus-disease-(covid-2019)-and-the-virus-that-causes-it) (Zugriff am 27.05.2020)
 - 3) World Health Organization. (Coronavirus disease 2019) [https://www.who.int/emergencies/diseases/novel-coronavirus-2019/clinical-guidance/covid-19-\(definition-for-use-of-international-travel-health-related-terminology\)](https://www.who.int/emergencies/diseases/novel-coronavirus-2019/clinical-guidance/covid-19-(definition-for-use-of-international-travel-health-related-terminology)) (Zugriff am 27.05.2020)
- Note:** This product has received special approval from BfArM (No. 556405-006/27) according to Section 11 (1) MFG and therefore, can be placed on the market in Germany for a limited period of time.

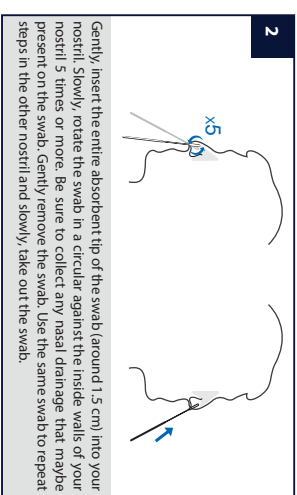
STEP-BY-STEP-INSTRUCTION

1



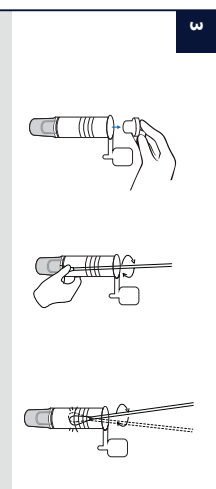
Open the sealed pouch and remove the test cassette. Lay it face up on a clean, dry and flat surface.

2



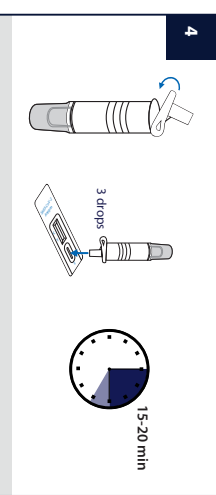
Gently, insert the entire absorbent tip of the swab (around 1.5 cm) into your nostril. Slowly, rotate the swab in a circular against the inside walls of your nostril 5 times or more. Be sure to collect any nasal drainage that maybe present on the swab. Gently remove the swab. Use the same swab to repeat steps in the other nostril and slowly, take out the swab.

3



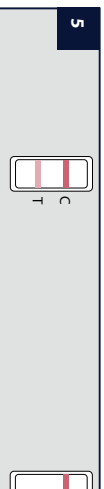
Take sample tube with pre-filled sample extraction buffer and remove the white cap of the sample tube. Insert the swab into the sample tube pre-filled with extraction buffer. Mix well and squeeze the tube 10-15 times by compressing the walls of the tube against the swab. Roll the swab head against the inner wall of the tubes as you remove it. Try to release as much liquid as possible. Dispose of the used swab in accordance with your local regulations.

4



Close the cap of the sample tube. Add 3 full drops of the mixed solution vertically into the sample well (S) of the test cassette. Read the result: 15-20 minutes after adding the sample. Result got after 20 minutes is invalid.

5



Positive
Two colored bands appear on the membrane. One band appears in the control region (C) and another band appears in the test region (T). The test result means that SARS-CoV-2 antigen are detectable in your sample. The detection of these antigens indicates with a high probability of infection with the novel coronavirus.

Invalid
If there is no Control line (C) or only a Test line (T) in the result window, the test did not run correctly and the results are not valid. It is important that you carefully follow the instructions for the test. You should test again with a new sample and a new test.

Negative
Only one colored band appears in the control region (C). No apparent colored band appears in the test region (T). The test result indicates that there is no or too little SARS-CoV-2 Antigen in the sample and at the current time there is probably no infection with the novel coronavirus.

A negative result does not preclude SARS-CoV-2 infection, so please stay at home if you have clinical symptoms or if you have a well-founded suspicion and contact physician or responsible health authority to get information on how to proceed further.

***Note:** The thickness of the line is insignificant; any reddish color in the Test line (T) should be considered a positive result. The positive test result must be confirmed by PCR.

INSTRUCTIONS OF SYMBOL

| Manufacturer | LOT |
|--|---|
| Consult instruction for use | Batch number (use imprint on packaging) |
| Contains sufficient for 1 tests | for single use |
| REF | Store at 2°C - 30°C Do not freeze. |
| Order number | In vitro diagnostic medical device (CE certified) |
| Expiry date (see imprint on packaging) | Keep dry |
| manufacturer's date | |