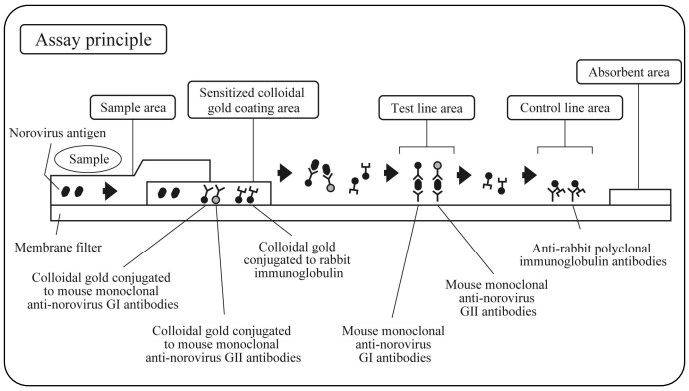
Read this Instructions for Use carefully before testing.

For in vitro diagnostic use only

MIZUHO MEDY Co., Ltd.

Norovirus antigen kit

Quick Chaser Noro



[Package]

67900: Quick Chaser Noro - 10 tests/kit

[Contents]

1) Test plate - 10 tests
   - Mouse monoclonal anti-norovirus GI Note 1) antibodies
   - Mouse monoclonal anti-norovirus GII Note 2) antibodies
   - Colloidal gold conjugated to mouse monoclonal anti-norovirus GI antibodies
   - Colloidal gold conjugated to mouse monoclonal anti-norovirus GII antibodies
2) Extraction reagent solution vial - 1 mL × 10 vials
3) Swab - 10 pieces
4) Filter (for extraction reagent solution vial) - 10 pieces
5) Filter cap - 10 pieces

Note 1) Abbreviation of Genogroup Ⅰ
Note 2) Abbreviation of Genogroup Ⅱ

[Intended use]

For qualitative detection of norovirus antigens in stool specimen
(An aid in the diagnosis of norovirus infection)

[Principle of the test]

"Quick Chaser Noro" is the in vitro reagent for qualitative detection of norovirus antigens based on Immunochromatographic Assay.
Colloidal gold conjugated to mouse monoclonal anti-norovirus GI antibodies, colloidal gold conjugated to mouse monoclonal anti-norovirus GII antibodies and colloidal gold conjugated to rabbit immunoglobulin for control line are coated in sensitized colloidal gold coating area in test plate. Also, mouse monoclonal anti-norovirus GI antibodies and mouse monoclonal anti-norovirus GII antibodies are immobilized in test line area, and anti-rabbit immunoglobulin antibodies for control line are immobilized in control line area.
If norovirus antigens are present in the sample, according to the principle of immunochromatography, they react with colloidal gold conjugated to mouse monoclonal anti-norovirus GI antibodies or colloidal gold conjugated to mouse monoclonal anti-norovirus GII antibodies as they migrate from the sample area. Moreover, they are captured in the test line area by reacting with monoclonal anti-norovirus GI antibodies or mouse monoclonal anti-norovirus GII antibodies. As a result, a purple-red line with the colloidal gold appears in the test line area.
At the same time, the colloidal gold conjugated to rabbit immunoglobulin also migrate and are captured by the anti-rabbit immunoglobulin antibodies on the control line area, resulting in the appearance of a purple-red line in the control line area regardless of the presence or absence of norovirus antigens.

[Warnings and Precautions]

1) For in vitro diagnostic use only.
2) Procedures not described in the Instructions for Use are not guaranteed.
3) Use swab included in this product at the time of specimen collection.
4) Avoid the storage of suspended extraction reagent solution.
5) When adding a sample, keep the tip of the filter by about 10mm from the center of the sample area so that a drop can be formed, and add the specified volume (3 drops). If the sample volume is not as specified, the reaction may not be accurate.
6) Bring test plate and extraction reagent solution to 15 to 30℃ prior to testing.
7) Sample (specimen) may contain infectious materials besides norovirus. Handle sample (specimen) with great care as there is a risk of infection during the test.
8) When using, wear protective equipment (glasses, disposable gloves, mask, etc.) and be careful not to let the sample (specimen) or extraction reagent solution directly adhere to the skin or get into your eyes.
9) Do not collect the specimen with a swab soaked in the extraction reagent solution.
10) If a sample (specimen) or extraction reagent solution accidentally gets into your eyes or mouth, take first-aid measures such as rinsing it thoroughly with water and seek medical attention if necessary.
11) Filter cap included in the kit does not provide an airtight seal. Do not use it for purposes of transportation or preservation.
12) Perform the specimen collection from the rectum under the guidance of a qualified person.
13) The material of the membrane used for the test plate is nitrocellulose. Do not perform tests near a fire as nitrocellulose is extremely flammable.
14) If the sample (sample) spatters, wipe it off with sodium hypochlorite (effective chlorine concentration of 200 ppm or more), etc. Do not use ethanol as it has no effect on inactivating norovirus.
15) Do not insert swab into eyes, mouth (throat), nose etc.
16) Take extra care of handling specimens and utensils contacted by specimen as there is a risk of secondary infections.
17) Do not freeze this product. Store it in accordance with the description of storage. Do not use frozen reagents as they may change the quality and may not give correct results.
18) Do not use this product beyond the expiration date.
19) Do not store extraction reagent solution vial sideways or upside down.
20) Use extraction reagent solution included in this kit or Quick Chaser Rota/Adeno. Do not use extraction reagent solution in any other kits.
21) Use the test plate immediately after opening the aluminum pouch. If the test plate is left for a long period of time, it could not react by exposure to moisture.
22) Do not touch sample area, test line area and control line area by hand directly.
23) Do not perform the test in a place such as under an air conditioner where the dry wind directly blows the test plate to prevent uneven migration.
24) Do not use the reagents, accessories, etc. of this product for any purpose other than this test.
25) Test plate, swab, and extraction reagent solution vial (including filter and caps) are intended for single use only.
26) Use swabs included in this product.
27) Do not place the swab in the direct sunlight such as near the window for a long time as the sunlight may cause discoloration etc. of the sponge portion.
28) Do not touch the sponge portion of the swab before use.

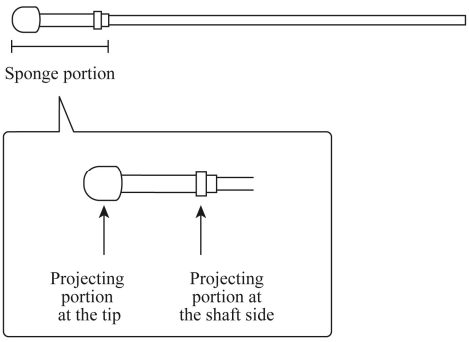
29) Use swab immediately after opening the package.
30) Do not use a swab if a break and/or hole are found on the package.
31) Do not use a swab if stained, broken, or bent.
32) Do not bend or curve the rod of the swab before collecting stool from rectum.
33) Be careful not to break the rod of the swab or damage the collection site (mucosa) by applying too much force or pressing too hard when collecting stool from rectum.
34) After preparing the sample, be careful not to spatter the sample when removing the swab.
35) If the amount of specimen collected is excessive or the stool contains a large amount of solid matter, the membrane filter may clog. Instead of forcing filtration, use a new extract reagent solution and filter and start over from sample collection.
36) Handle liquid waste and used utensils by any of the following disinfection and sterilization methods as sample (specimen) may contain infectious material such as HIV, HBV, and HCV, etc.
    a) Immerse in sodium hypochlorite solution (effective chlorine concentration of 1,000 ppm) for 1 hour or longer
    b) Immerse in 2% glutaraldehyde solution for 1 hour or longer
    c) Autoclave at 121℃ for 20 minutes or longer
37) Regarding disposal of used reagents and utensils, dispose of them in accordance with the Local Regulation and Law of waste disposal.

[Storage and stability of the device]

Store kit at 1 to 30 °C, out of direct sunlight or high humidity. Kit contents are stable until the expiration dates printed on the product box and packaging. Do not store upside down or sideways. Do not freeze.

[Preparation of specimen collection]

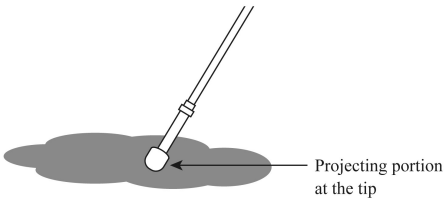
1) Extraction reagent solution: No prior preparation required.
2) Swab: use swab included in this test kit.



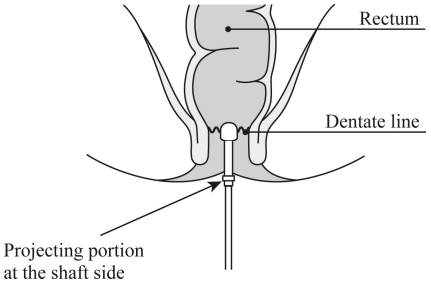
[Specimen collection and handling]

Proper specimen collection and handling are critical to the performance of this kit.

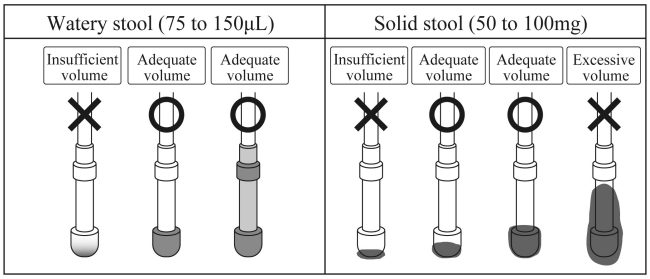
1. Naturally evacuated stool specimen, enema stool specimen:
   Collect specimen by swab included in this test kit.
   - In the case of liquid stool, at least soak the entire projecting portion at the tip for a sufficient amount.
     Liquid stool can also be collected by soaking the entire sponge portion.
   - In case of solid stool, collect specimen to lightly cover up to the half to whole of projecting portion at the tip.



2. Rectal swab specimen:
   Taking particular attention not to injure patients when collecting rectal swab specimen, insert swab turning softly so that entire sponge portion is hidden in anus of patient (to the position of projecting portion at the shaft side) and collect stool specimen.



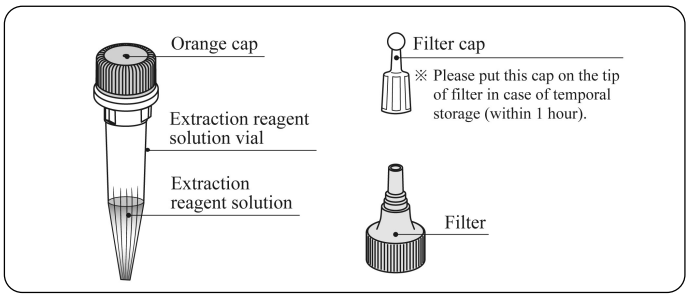
3. Adequate specimen volume



Specimens should be tested as soon as possible. However, if the test cannot be performed immediately, swab specimen can be stored in a clean and dry sealed container for up to 4 hours at room temperature or 48 hours at 2 to 8 ℃. If the specimens need to be stored for a long period of time, store them under - 20 ℃ and avoid repeating freezing and thawing. Bring stored specimens at 15 to 30 ℃ before sample preparation and testing.

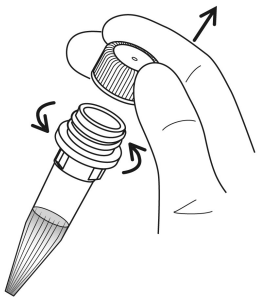
[Sample preparation and Test procedure]

· Details of extraction reagent solution vial

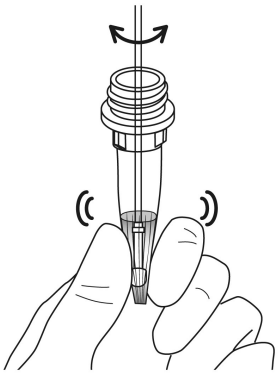


• Sample preparation

1. Loosen the orange cap by turning it counterclockwise.

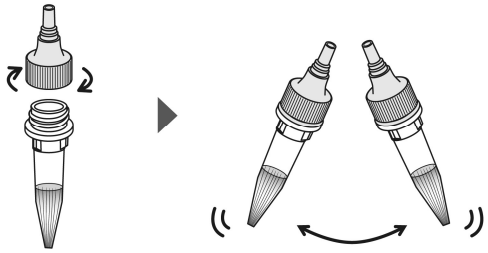


2. Insert the sponge portion with the collected specimen into the bottom of the extraction reagent solution vial. Extract the specimen by pressing the sponge portion from the outside of the vial, turning the swab clockwise and counterclockwise about five times, and rubbing the sponge portion on the inside wall and bottom of the vial. Take the swab out of the vial while squeezing out the liquid by pressing the sponge portion.

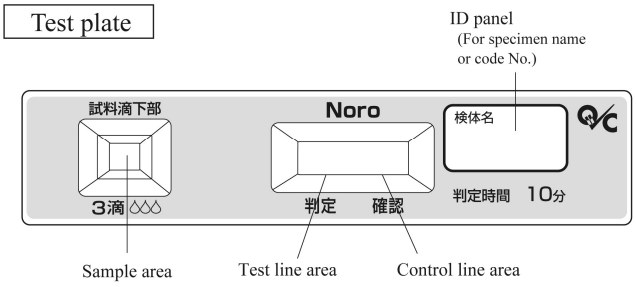


Note) Do not leave the fecal suspension for more than 1 hour before testing.

3. Install filter and shake the vial gently to mix specimen thoroughly. The sample is ready for use.



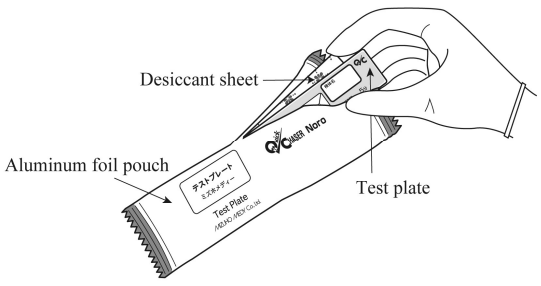
· Details of test plate



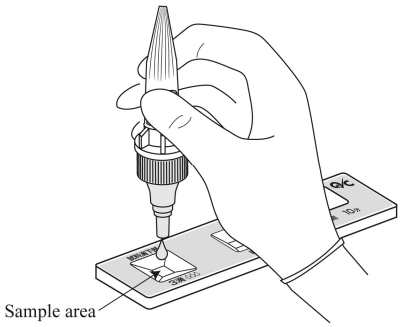
· Test procedure

1) Preparation of reagent
Test plate: No prior preparation required.

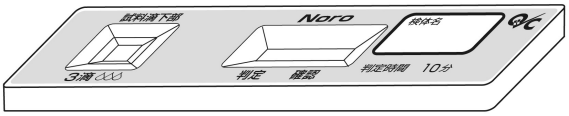
2) Test procedure
1.Remove the test plate from the aluminum foil pouch. Discard the desiccant sheet included in the aluminum foil pouch.



2. Add 3 drops (about 110μL) of sample to the sample area of the test plate from the extraction reagent solution vial containing the prepared sample. Hold the vial vertically so that the tip of the extraction filter does not come into contact with the sample area of the test plate.



3) Leave to react at 15 to 30°C.
Interpret test results visually by reading lines in the test line area and control line area after 5 to 10 minutes.

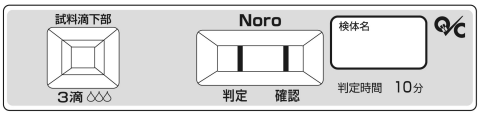


[Interpretation]

Interpretation by the existence of red-purple lines in the test line area and control line area.

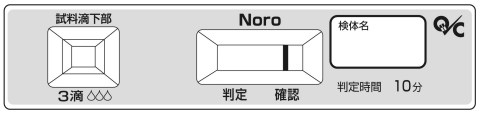
<Positive>
Both test line and control line appear.

Positive



<Negative>
Only a control line appears.

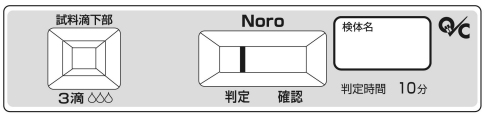
Negative



<Retest>
If both test line and control line do not appear or no control line appears, an operational error such as insufficient sample volume may be considered. Recheck test procedure and retest with the new test plate. If the same result comes out in the retest again, confirm it with other methods.

Retest

Retest



[Limitations]

1) The diagnosis of norovirus infection should not be based solely on the test results of this product but should be comprehensively made in consideration of other test results and clinical symptoms.
2) Use naturally evacuated stool, enema stool, and rectal swab as specimen. Do not use vomit or foods etc.
3) In case that pieces of disposable diaper are mixed in specimen, it may be impossible to add sample. Do not use pieces of diaper with stool as specimen.
4) Avoid specimen collection after using macrogol (polyethylene glycol)-based suppositories (NAUZELIN® Suppository or DIAPP® SUPPOSITORIES etc.) as such suppositories may cause poor migration of extraction reagent solution or false positive.
5) In the case of test line and control line appear at 5 to 10 minutes after dropping the sample, it can be interpreted as positive. Negative should be interpreted at 10 minutes after dropping the sample. The streak line might temporarily appear due to the flow of colloidal gold. Do not interpret the temporal streak line as the appearance of the test line. After 10 minutes, colloidal gold can appear like a line due to the drying of the test plate with time. Therefore, please interpret test results within 10 minutes.
6) This product is used as an aid in the diagnosis for norovirus infection. In case norovirus antigen amount in the specimen is below the detection limit of the test or inadequate specimen collection, test result could be interpreted as negative, even though the patient is infected by norovirus. In addition, a non-specific reaction may occur depending on the factors in the sample, and a negative specimen may be interpreted as positive. The final definitive diagnosis should be made comprehensively from clinical symptoms and other test results.

[Performance characteristics]

1) Performance
   1. Sensitivity
      • When GI positive control [Note 1)] was tested, a positive result was obtained.
      • When GII positive control [Note 2)] was tested, a positive result was obtained.
   2. Accuracy
      • When GI positive control was tested, a positive result was obtained.
      • When GII positive control was tested, a positive result was obtained.
      • When in-house negative control [Note 3)] was tested, a negative result was obtained.
   3. Reproducibility
      • When GI positive control was tested three times simultaneously, positive result was shown in all cases.
      • When GII positive control was tested three times simultaneously, positive result was shown in all cases.
      • When in-house negative control was tested three times simultaneously, negative result was shown in all cases.

   Note 1) Norovirus GI-VLP [Note 4)], diluted with extraction reagent solution to be equivalent to 1.0×10^8 copies/mL of reference material
   Note 2) Norovirus GII-VLP, diluted by extraction reagent solution to be equivalent to 1.0×10^8 copies/mL of reference material
   Note 3) Extraction reagent solution
   Note 4) Abbreviation of Virus-Like Particle

   4. Detection limit
      6.25×10^6 copies/mL (GI)
      6.25×10^6 copies/mL (GII)

2) Correlations
   Comparison with existing approved product
   (immunochromatographic assay)

Quick Chaser Noro

Other product (1)	Positive	Negative	Total
Positive	55	0	55
Negative	4[*1]	73	77
Total	59	73	132

Positive agreement rate : 100%(55/55)
Negative agreement rate : 94.8%(73/77)
Total agreement rate : 97.0%(128/132)
[*1] All four discrepant cases were positive with the RT-PCR method

Comparison with existing approved product
(ELISA)

Quick Chaser Noro

Other product (2)	Positive	Negative	Total
Positive	50	2[*2]	52
Negative	9[*3]	71	80
Total	59	73	132

Positive agreement rate :96.2%(50/52)
Negative agreement rate :88.8%(71/80)
Total agreement rate :91.7%(121/132)
[*2] Both two discrepant cases were positive with the RT-PCR method
[*3] All nine discrepant cases were positive with the RT-PCR method

3) Calibration reference material (Standard material)
   In-house prepared norovirus solution (In-house standard)

4) Interfering substances and medications
   Following substances and blood did not interfere with the performance of this product at the concentration listed below.

・Hemoglobin	(0.5g/dL)
・Intralipid® fluid solution 10%	(1% as final concentration of fat content) (assuming fat-containing stool)
・Glycerin enema	(5% as final concentration of glycerin)
・Polycarbophil calcium (Gelling antiflatulent)	(1%)
・Blood	(2%)

5) Cross reactivity

Cross reactivity was not observed with the following viruses ($1.0 \times 10^5 TCID_{50}$[Note 1)]/mL) and bacteria.

・Viruses

Rotavirus：Rotavirus A

Adenovirus：Adenovirus 1, Adenovirus 40, Adenovirus 41

Note 1)$TCID_{50}$：50% tissue culture infectious dose

・Bacteria

Bacillus cereus	1.0×10^3CFU[Note 2)]/mL
Campylobacter coli	1.0×10^5CFU/mL
Campylobacter jejuni	1.0×10^3CFU/mL
Citrobacter freundii	1.0×10^3CFU/mL
Clostridium perfringens	1.0×10^5CFU/mL
Enterococcus faecalis	1.0×10^8CFU/mL
Escherichia coli O6	1.0×10^3CFU/mL
Escherichia coli O78	1.0×10^5CFU/mL
Escherichia coli O114	1.0×10^3CFU/mL
Listeria monocytogenes	1.0×10^3CFU/mL
Proteus mirabilis	1.0×10^3CFU/mL
Pseudomonas aeruginosa	1.0×10^7CFU/mL
Salmonella Enteritidis	1.0×10^3CFU/mL
Salmonella Typhimurium	1.0×10^3CFU/mL
Shigella flexneri	1.0×10^3CFU/mL
Shigella sonnei	1.0×10^3CFU/mL
Vibrio cholerae	1.0×10^3CFU/mL
Vibrio parahaemolyticus	1.0×10^3CFU/mL

Note 2) CFU：colony forming unit

[Shelf life]

24 months from the date of manufacture

(As indicated on the product box and packaging)

Technical information

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