5. The membrane is laminated with an adhesive tape to prevent surface evaporation. Air pockets or patches may appear, which do not interfere with the test results. Presence of a band at the test region even if low in intensity or formation is a positive result.
6. The deliberate slow reaction kinetics of CORE S. TYPHI IGM is designed to maximize and enhance reaction time between sample capture and tracer elements to improve test sensitivity.
7. Most positive results develop within 15 minutes. However, certain sera sample may take a longer time to flow. Therefore, negatives should be confirmed only at 30 minutes. Do not read results after 30 minutes.
8. As with all diagnostic tests, a definitive clinical diagnosis should not be based on the result of a single test, but should only be made by the physician after all clinical and laboratory findings have been evaluated.
9. CORE S. TYPHI IGM should be used as a screening test in clinically suspected cases only, and its results should be confirmed by other supplemental method before taking clinical decisions.

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SYMBOLS USED ON THE

	Consult instructions for use
	Storage temperature
	Use by
LOT	Batch code
REF	Catalogue number
I V D	In vitro diagnostic medical device
CARD	Test Device
PIPETTE	Disposable Plastic Dropper
BUF	Sample running buffer
	Manufactured By
	Date of Manufacture
	Contains sufficient <n> tests

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UNITED KINGDOM

CE

Core™ S Typhi IgM

Rapid test for detection of IgM antibodies to S. typhi in serum / plasma / whole blood
Cat N°: TYP-180002

INTRODUCTION

CORE S. TYPHI IGM is a rapid, qualitative, sandwich immunoassay for the detection of IgM antibodies to S. typhi in human serum/plasma or whole blood specimen

SUMMARY

A febrile condition, Typhoid fever, is a bacterial infection caused by Salmonella serotypes including S. typhi, S. paratyphi A, S. paratyphi B and Salmonella sendai. The symptoms of the illness include high fever, headache, abdominal pain, constipation and appearance of skin rashes. Accurate diagnosis of typhoid fever at an early stage is not only important for etiological diagnosis but to identify and treat the potential carriers and prevent acute typhoid fever outbreaks. The conventional WIDAL Test usually detects antibodies to S. typhi in the patient serum from the second week of onset of symptoms. However, the detection may be earlier if specific IgM antibodies are detected instead of IgG or both IgG & IgM. CORE S. TYPHI IGM qualitatively detects the presence of IgM class of antibodies to Lypopolysaccharide (LPS) specific to S. typhi in human serum /plasma or whole blood specimens.

PRINCIPLE

CORE S. TYPHI IGM utilizes the principle of Immunochromatography, a unique two-site immunoassay on a nitrocellulose membrane. The conjugate pad contains two components – Anti-human IgM antibody conjugated to colloidal gold and rabbit IgG conjugated to colloidal gold. As the test specimen flows through the membrane test assembly, the highly specific anti-human IgM antibody-colloidal gold conjugate complexes with the S. typhi specific IgM antibodies in the specimen and travels on the membrane due to capillary action alongwith the rabbit IgG-colloidal gold conjugate. This complex moves further on the membrane to the test region (T) where it is immobilized by the S. typhi specific LPS antigen coated on the membrane leading to formation of a pink to pink-purple coloured band. The absence of this coloured band in the test region indicates a negative test result.

The unreacted conjugate and unbound complex, if any, move further on the membrane and are subsequently immobilized by the anti-rabbit antibodies coated on the membrane at the control region (C), forming a pink to pink-purple coloured band. This control band acts as a procedural control and serves to validate the results.

REAGENTS AND MATERIALS SUPPLIED

Kit Components

A. Individual pouches each containing a -
   1. Test device: Membrane assembly pre-dispensed with Anti Human IgM - colloidal gold conjugate,rabbit IgG - colloidal gold conjugate,S.typhi LPS antigen and anti-rabbit antiserum coated at the respective regions.
   2. Desiccant pouch
   3. Sample loop
B. Sample Running Buffer

OPTIONAL MATERIAL REQUIRED: 5 µl precision micropipette

C. Package Insert STORAGE AND STABILITY

The sealed pouches in the test kit and the sample running buffer may be stored between 4℃ to 30℃ for the duration of the shelf life as indicated on the pouch and the vial. After first opening of the sample running buffer vial, the buffer is stable until the expiration date, if kept at 4℃ to 30℃. Do not freeze the kit or components.

NOTES

1. For in vitro diagnostic use only. NOT FOR MEDICINAL USE.
2. Do not use beyond expiration date.
3. Read the instructions carefully before performing the test.
4. Handle all specimens as if potentially infectious.
5. Follow standard biosafety guidelines for handling and disposal of potentially infectious material.
6. If desiccant colour at the point of opening the pouch has turned from blue to pink or colourless, another test device must be run.

SPECIMEN COLLECTION AND PREPARATION

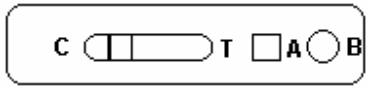
1. CORE S. TYPHI IGM uses human serum / plasma / whole blood as specimen.
2. No special preparation of the patient is necessary prior to specimen collection by approved techniques.
3. For whole blood, collect blood with a suitable anticoagulant such as EDTA or Heparin or Oxalate and use the freshly collected blood.
4. Whole blood should be used immediately and should not be frozen.
5. Though fresh specimen is preferable, in case of delay in testing, it may be stored at 2-8 ℃ for maximum up to 24 hrs.
6. If serum is to be used as specimen, allow blood to clot completely. Centrifuge to obtain clear serum.
7. Repeated freezing and thawing of the specimen should be avoided.
8. Do not use turbid, lipaemic and hemolysed serum/plasma.
9. Do not use hemolysed, clotted, contaminated,viscous/turbid specimens.
10. Specimen containing precipitates or particulate matter must be centrifuged and the clear supernatant only used for testing.
11. Refrigerated specimens must be brought to room temperature prior to testing.

TESTING PROCEDURE AND INTERPRETATION OF RESULTS

1. Bring the kit components of CORE S. TYPHI IGM device to room temperature before testing.
2. Open a foil pouch by tearing along the "notch".
3. Remove the testing device and the sample loop. Once opened, the device must be used immediately.
4. Label the device with specimen identity.
5. Place the testing device on a flat horizontal surface.
6. Carefully dispense 5 µl of whole blood / serum / plasma into the specimen port "A" using a micropipette or the sample loop provided. Dip the sample loop in the sample container and blot the sample in the sample port "A".
7. Add five drops of sample running buffer into the reagent port "B".
8. At the end of 15 minutes, read results as follows:

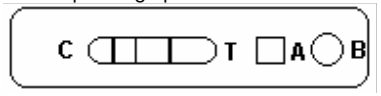
Negative Result

If IgM antibodies to S.typhi are not present, only one coloured band appears in the Control Window (C).



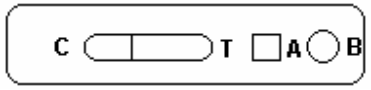
Positive Result

If IgM antibodies to S.typhi are present, two coloured bands appear in the Test (T) and Control Windows (C). The intensity of the test band may be more or less than the Control band, depending upon the concentration of IgM antibodies in specimen.



Invalid Result

The test is invalid if the Control band is not visible at fifteen minutes. Verify the test procedure and repeat the test with a new device.



TEST PERFORMANCE

Internal Evaluation

In an in-house study, the performance of CORE S. TYPHI IGM was evaluated using a panel of fifty specimens of WIDAL-positive (of varying reactivity) and WIDAL-negative sera in comparison with a commercially available DOT ELISA test kit. The results of the evaluation are as follows:

Specimen Data	Total	CORE S. TYPHI IGM	Commercially available Dot ELISA
Number of specimen tested	50	50	6
Number of Positive tested	6	6	6
Number of Negative tested	44	43	44

Based on this evaluation:
Sensitivity of CORE S. TYPHI IGM : 100%
Specificity of CORE S. TYPHI IGM : 97.7%

External Evaluation-I

Seventy samples that were blood-culture positive, blood-culture negative sera and potentially cross-reacting sera were evaluated with CORE S. TYPHI IGM. The results of the evaluation are as follows:

Specimen Data	Total	No. of Positives	No. of Negatives
Blood-culture positive sera	29	23	6
Blood-culture negative sera	10	1	9
Potentially cross-reacting negative sera	31	3	28

Based on this evaluation:
Sensitivity of CORE S. TYPHI IGM : 79.3%
Specificity of CORE S. TYPHI IGM : 90.2%

External Evaluation-II (Specificity & Precision study)

Thirty blood-culture negative sera were tested with CORE S. TYPHI IGM. The following are the results:

Specimen Data	Total	No. of Positives	No. of Negatives
Blood-culture negative sera	30	0	30

Based on this evaluation:
Specificity of CORE S. TYPHI IGM :100%

Intra-assay Precision study

One blood-culture positive sample was assayed 10 times on the same day.
Results: No variation in results was observed indicating 100% correlation.

Inter-assay Precision study

One blood-culture positive sample was assayed 3 times on 3 different days.
Results: No variation in results was observed indicating 100% correlation.

REMARKS

1. In some studies it has been reported that IgM antibodies to S.typhi persist for about 4 months post infection. Therefore, results within four months from an endemic area should be interpreted with caution.
2. The following chart would explain the IgM seroresponse in S.typhi infected subjects after onset of fever.

Detectable IgM Response

Onset of Fever	Percent Positive
4-6 days	43.50%
6-9 days	92.90%
>9 days	100%

3. A negative result, i.e., the absence of detectable IgM antibody does not rule out recent or current infection. However, if S. typhi infection is still suspected, obtain a second specimen 5-7 days later and repeat the testing.
4. Specific IgG may compete with the IgM for sites and may result in a false negative. Conversely, rheumatoid factor in the presence of specific IgG may result in a false positive reaction.