TUBEX® TF
Rapid typhoid detection
Typhoid fever is a water- and foodborne infectious febrile disease caused by Salmonella typhi. The disease is endemic in large parts of Asia, Africa and Central and South America, and occasionally also causes epidemic spread. It causes high fever, flu-like symptoms, and severe symptoms in the digestive system that causes systemic disease, which is potentially life threatening if not correctly treated. Due to its non-specific clinical indications, patients with typhoid fever are commonly misdiagnosed with malaria, dengue fever, gastroenteritis or pneumonia. A definitive diagnosis depends on the isolation of S. typhi from bone marrow, blood, or stool, a process that is cumbersome, time-consuming, and even impossible without laboratory facilities. Diagnostic alternatives must therefore deliver effective and reliable results, independent of laboratory facilities. Typhoid fever is normally treated with antibiotics; thus appropriate antibiotic therapy is mandatory, typhoid mortality is high and ranges from 12-30 percent.

TUBEX® TF is a rapid and sensitive in vitro diagnostic test for detection of acute typhoid fever, a disease caused by Salmonella typhi. The test principle for TUBEX® TF is based on Inhibition Magnetic Binding Immunoassay (IMBi®) - a semi-quantitative colormetric assay. TUBEX® TF can easily be performed in any laboratory setting as well as in the field. A positive TUBEX® TF result, together with typical clinical symptoms, is a strong indication of acute typhoid fever.

Thus appropriate antibiotic therapy is mandatory, typhoid mortality is high and ranges from 12-30 percent. TUBEX® TF is an in vitro diagnostic test, based on early detection of Salmonella typhi IgM anti-O9 antibodies in serum. It is based on IMBi® technology 1 2 a semi-quantitative assay technology, a simple assay technology based on visual interpretation. TUBEX® TF is characterized by high sensitivity and specificity. TUBEX® TF can be performed in any laboratory environment and the result is ready within 10 minutes.

TUBEX® Wash Buffer is a product that is recommended to be used as a complement to TUBEX® TF to analyze colored serum samples. Colored serum samples can be difficult to test and interpret in TUBEX® TF, but by adding an extra washing step with TUBEX® Wash Buffer it is possible to accurately interpret these problematic samples.

The awareness of the clinical benefits of TUBEX® TF in endemic settings is increasing. Some results from clinical trials from different parts of the world are presented below:

In a comparative study in the Philippines1, Kawano and co-workers evaluated four antibody detection tests for typhoid fever. The sensitivity of TUBEX® TF was 95% at a specificity of 80%. In this study TUBEX® TF performed best among the analysed tests.

In a prospective trial in Bangladesh by Rahman and co-workers2, a total of 243 febrile outpatients (mainly children and adolescents) and 57 healthy controls were enrolled. Based on culture results, TUBEX TF was 91% sensitive and 82% specific in febrile subjects. Specificity increased to 90% in non-febrile healthy subjects, suggesting that some culture-negative patients were truly typhoidal. The Widal test demonstrated a sensitivity of 82 % and a specificity of 58%.

**Assay procedure**

1. Add 45µl TUBEX® TF Brown Reagent (detector) to the TUBEX® Reaction Well Strip.
2. Add 45µl patient sample, TUBEX® TF Positive Control or TUBEX® TF Negative Control. Mix 10 times by pipetting.
3. Incubate on the bench for 2 minutes.
4. Add 90 µTUBEX® TF Blue Reagent (indicator).
5. Cover the TUBEX® Reaction Well Strip using the TUBEX® Sealing Tape. Tilt and shake the TUBEX® Reaction Well Strip for 2 minutes.
6. Place the TUBEX® Reaction Well Strip on the TUBEX® Color Scale. Allow separation for 5 minutes. Read and score the results by comparing the color of each supernatant to the TUBEX® Color Scale. The color scale range from score 0 (negative test) to 10 (positive test).
References:


7. WHO. Background document. The diagnosis treatment and prevention of typhoid fever. 2003; 11-16. WHO/V&B/03.07 (www.who.int/vaccines-documents/)

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