



Technology DRDO 077: Typhigen Kit

The Defense Research Development Organization of India has developed a simple agglutination based antigen detection test where observation can be taken by naked eyes. The innovation rapid diagnostic 'typhigen' kit using recombinant DNA technology enables direct detection of the salmonella typhi antigen in the patient's serum within one to three minutes, thus allowing early treatment of the affected persons. It is an agglutination based technology for direct detection of typhoid antigen in clinical samples. It was developed using immunological and biotechnological techniques. It is highly sensitive and specific system and rapid in nature. Serodiagnosis of typhoid using the Widal test is not specific and sensitive; therefore, an alternate method of antigen detection was attempted and the kit was developed

The test can be performed on plasma or serum of suspected typhoid patient. It can be performed in the laboratory and in the field as well. To conduct the test, no special training is required. The reagent can be stored in cold four degree Celsius for more than nine months. To develop the system, we have amalgated recombinant DNA technology with immunological techniques.

The conventional method of typhoid diagnosis is based on the isolation of *S. typhi* from patient's blood or detection of antibodies by Widal test. Both tests have limitations. Blood culture is time consuming and requires culture facilities, which at times are not available in primary health centers in remote areas and hospitals. Additionally, it becomes negative if patient had already been administered with antibiotics. Further, the Widal test requires paired serum samples from the patient at an interval of one week and test protocol is time consuming.

The All India Institute of Medical Sciences has tested this technology and found it highly satisfactory. The innovation is based on a latex agglutination based detection system using recombinant DNA technology and immunological techniques to detect typhoid antigen directly in patient's serum or plasma within 3 minutes. It appears that the present technology can get wide acceptability among the regions where Typhoid Fever is common.

Development Status

- The test is more than 90% sensitive and more than 98% specific. The test is in full scale prototype and will be available within 7-12 months.

IP Status

- A patent, "A process for the preparation of an agglutination reagent for rapid detection of Typhoid", file No. is 1187/DEL/2002 has been applied for and is under review.

Partner Opportunities

- Manufacturing licensing agreements.

Contact

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