

Product Specification Sheet

**Human Anti-S. enterica serovar Typhi (Typhoid) polysaccharide (Vi) IgG controls**

|                                      |   |      |
|--------------------------------------|---|------|
| <input type="checkbox"/> 990-500-01N | Human Anti-S. enterica serovar Typhi Vi IgG <b>negative</b> serum for ELISA | 1 ml |
| <input type="checkbox"/> 990-500-02P | Human Anti-S. enterica serovar Typhi Vi IgG <b>positive</b> serum for ELISA | 1 ml |

Typhoid fever or typhoid is a common worldwide bacterial disease transmitted by the ingestion of food or water contaminated with the feces of an infected person, which contain the bacterium *Salmonella enterica enterica*, serovar Typhi. The disease has received various names, such as gastric fever, abdominal typhus, infantile remittant fever, slow fever, nervous fever and pythogenic fever. The name typhoid means "resembling typhus" and comes from the neuropsychiatric symptoms common to typhoid and typhus. The term enteric fever is a collective term that refers to severe typhoid and paratyphoid. The bacterium that causes typhoid fever may be spread through poor hygiene habits and public sanitation conditions, and sometimes also by flying insects feeding on feces. An estimated 16–33 million cases of typhoid fever occur annually. Its incidence is highest in children and young adults between 5 and 19 years old. These cases as of 2010 caused about 190,000 deaths up from 137,000 in 1990. Historically, in the pre-antibiotic era, the case fatality rate of typhoid fever was 10-20%. Today, with prompt treatment, it is less than 1%.

*S. Typhi* expresses a number of immunogenic structures on the surface, some of which provide a basis for serology identification. These include O (lipopolysaccharide), H (flagella) and the somewhat less immunogenic Vi capsule. *S. Typhi* exhibiting variation in these antigens are uncommon, with notable exceptions. *S. Typhi* found in Indonesia express variant H antigens including H:j and H:z66. Vi-negative *S. Typhi* isolates have been reported in Pakistan but are rare. Therefore, *S. Typhi* expressing O (O9, O12), Vi and H:d are ubiquitous in most endemic areas. Seroprevalence studies have been performed in endemic regions to determine antibody titers to O, H and Vi in the general population. Many individuals in endemic areas have cross-reactive antibodies even though they have

no clinical record of typhoid. Additionally, such raised antibody levels frequently cannot be detected in patients with culture confirmed typhoid. Problems have also been encountered during the testing of commercial serological tests, including Typhidot and Tubex.

Diagnosis is made by any blood, bone marrow or stool cultures and with the Widal test (demonstration of salmonella antibodies against antigens O-somatic and H-flagellar). The **Widal test** is time-consuming, and often, when a diagnosis is reached, it is too late to start an antibiotic regimen. Typhidot-M is a dot enzyme immunoassay for the detection of specific IgG/IgM antibody to *Salmonella typhi* OMP antigen *Salmonella typhi*.

There are few vaccines licensed for use for the prevention of typhoid: **the live, oral Ty21a vaccine** (sold as Vivotif by Crucell) and the injectable **Typhoid polysaccharide vaccine** (sold as Typhim Vi by Sanofi Pasteur and Typherix by GlaxoSmithKline). Both are 50% to 80% protective and are recommended for travellers to areas where typhoid is endemic. There exists an **older, killed-whole-cell vaccine** that is still used in countries where the newer preparations are not available, but this vaccine is no longer recommended for use because it has a higher rate of side effects (mainly pain and inflammation at the site of the injection). A new vaccine based upon Vi-rEPA (recombinant *Pseudomonas aeruginosa* exoprotein A) has been shown to confer 90% protection for 4 years in 2-5 yrs old children.

**Storage**

**Short-term:** unopened, undiluted vials for less than a week at 40C.

**Long-term:** at -20C or below in suitable aliquots after reconstitution. Do not freeze and thaw and store working, diluted solutions.

**Stability:** 6-12 months at -200C or below.

**Shipping:** 40C for solutions and room temp for powder.

**Source of Antibodies**

Human sera containing antibodies to Typhi Vi was tested by human anti-Typhi Vi IgG ELISA kit #990-500-HTG. The positive serum tested positive with A450 values of >1.0. The negative serum produced A450 values of <0.2. Control sera are provided in a stabilizing buffer and 0.05% azide. Store liquid at 40C for up to 3 months or frozen in suitable size aliquots.

Recommended as positive and negative controls for human anti-Typhoid Vi IgG by ELISA (#990-500-HTG). **Use undiluted as 100 ul per well.** If using in another test then dilute as necessary depending upon the sensitivity of the detection. The controls may register different values if tested in a kit from a different manufacturer.

All human derived material has been tested negative for HIV, HCV, and HbSag. Nevertheless, all precautions should be taken and samples be treated as potentially hazardous.

**General References:** Typhoid fever World Health Organization. Retrieved 2007-08-28; Crump JA (2010) *Clinical Infectious Diseases* 50 (2): 241–246; Baddam R (2012) *Journal of Bacteriology* 194 (13): 3565–3566; .

\*This product is for In vitro research use only.

**Related material available from ADI**

| Catalog#        | ProdDescription   |
|-----------------|---|
| 990-500-01N     | Human Anti-S. enterica serovar Typhi (Typhoid) polysaccharide (Vi) IgG negative serum for ELISA           |
| 990-500-02P     | Human Anti-S. enterica serovar Typhi (Typhoid) polysaccharide (Vi) IgG positive serum for ELISA           |
| 990-500-HTG     | Human Anti-S. enterica serovar Typhi (Typhoid) polysaccharide (Vi) IgG ELISA kit, 96 tests, Quantitative  |
| 990-510-01N     | Human Anti-S. enterica serovar Typhi (Typhoid) polysaccharide (Vi) IgM negative serum for ELISA           |
| 990-510-02P     | Human Anti-S. enterica serovar Typhi (Typhoid) polysaccharide (Vi) IgM positive serum for ELISA           |
| 990-510-HTM     | Human Anti-S. enterica serovar Typhi (Typhoid) polysaccharide (Vi) IgM ELISA kit, 96 tests, Quantitative  |
| 990-520-MTG     | Mouse Anti-S. enterica serovar Typhi (Typhoid) polysaccharide (Vi) IgG ELISA kit, 96 tests, Quantitative  |
| 990-530-MTM     | Mouse Anti-S. enterica serovar Typhi (Typhoid) polysaccharide (Vi) IgM ELISA kit, 96 tests, Quantitative  |
| 990-540-RTG     | Rabbit Anti-S. enterica serovar Typhi (Typhoid) polysaccharide (Vi) IgG ELISA kit, 96 tests, Quantitative |
| 990-550-RTM     | Rabbit Anti-S. enterica serovar Typhi (Typhoid) polysaccharide (Vi) IgM ELISA kit, 96 tests, Quantitative |
| 990-500-01N-02P | 141221A   |

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