

Product Information

Name of Kit: **ImmunoComb® Bovine Brucella Antibody Test Kit**

Catalog No: 50BBR103/ 50BBR130

No of Tests: 30 (Standard Kit)/ 300 (Lab-size Kit)

Intended Use: The ImmunoComb® Bovine Brucella Test Kit is suitable for preventive health programs and for diagnostic workup of cases of abortion in the herd. Serology is also helpful for identifying brucella infection in chronically infected animals that otherwise may appear to be healthy.

Diagnostic Method: The ImmunoComb® test is based on solid phase “dot”-ELISA technology. Antigen is applied to test ‘spots’ on the solid phase, which is a comb-shaped plastic card (the Comb).

The samples to be tested are mixed with diluent in the first row of wells of a multi-chamber developing plate. The test spots on the Comb are then incubated with the samples in the developing plate. Specific IgG antibodies from the samples, if present, bind to the antigens at the test spots.

The Comb is then transferred to a well, where unbound antibodies are washed from the antigen spots. In the next step, the Comb is allowed to react with an anti-cow IgG Alkaline Phosphates conjugate, which will bind to antigen-antibody complexes at the test spots. After 2 more washes, the Comb is moved to the last well, where a color result develops via an enzymatic reaction. The intensity of the color result of test spots corresponds directly to the antibody level in the test sample.

Pathogenesis: Bovine brucellosis is a disease caused the intracellular bacterium *Brucella*. Two serovars are recognized to be important pathogens in cattle, *Brucella melitensis* and *Brucella abortus*. The outstanding clinical manifestation of bovine brucellosis is abortion. Chronically infected cows may exhibit reduced milk production or produce stillbirths at term. The infection is typically transmitted by ingestion of brucella organisms that are shed in aborted tissues or fluids or in contaminated feed or water. Infection in cows has also occurred through venereal transmission by infected bulls.

Humans may also contract brucellosis, often by ingestion of contaminated dairy products or by direct contact with contaminated materials. Brucellosis is considered to be an occupational disease of veterinarians, farmers, and laboratory technicians.

Interpretation: The level of antibodies (i.e., antibody titer) is determined according to the intensity of the test color result. Thus, no or a light grey color indicates no (negative) or low level of antibodies. Higher levels of antibodies are indicated by darker color results. Positive and negative control serum samples are included in the ImmunoComb® Bovine Brucella Antibody Test Kit. The positive control develops a distinct grey color that should be scored S3.

Specimens with identical or darker grey color results (S3 – S5) are considered positive. Results may be seen in the acute phase of infection. A retest in 2 weeks is recommended to check for sero-conversion. A dark grey color result (S5 or greater) indicates a high antibody titer.

Specimens with colorless (white) or faint color result (S0 – S2) are considered negative or low positive (suspicious). These results are typically seen in uninfected herds and sometimes in recently or inapparently infected cows.

Main Application: The Kit is designed to determine cow serum IgG antibody titers for Brucella.

Other Diagnostic Methods: The definitive diagnostic method for confirming the diagnosis of brucellosis is by culture of contaminated fluids and tissues, particularly from aborted fetuses. However, this

method is slow and requires a suitable diagnostic laboratory. Bacteriological methods are not convenient for screening large numbers of animals, particularly in herds located remotely from diagnostic laboratories. Thus, serological testing has been encouraged.

Standards for brucellosis serology have been established for *B. abortus* in cattle. The serum agglutination test (SAT) has been most widely used for screening brucellosis on a herd or flock basis. For the purposes of international trade, many countries use the SAT as a reference. The European Union (EU) has established a maximum titer of 30 IU in individual animals. The Complement Fixation (CF) test is regarded to be more sensitive and specific than the SAT and is widely accepted as a confirmatory test. The EU also specifies a 'cut-off' titer of 20 international CF test units for this method. ELISA tests have gained increased acceptance as both a screening and confirmatory test for brucellosis. The sensitivity and specificity of the ELISA is comparable to the CF test and is technically easier to perform.

Table 1: Approximate Correlation of ImmunoComb® with Complement Fixation (CF) & Serum Agglutination Tests (SAT)

ImmunoComb® Color Result	Test Result	CF	SAT
0-1	Negative	0	0-1:20
2-3	Positive	1:5	1:40
4-5	Positive	1:10	1:80
6	High Positive	>1:20	>1:160

References:

Banai, M. (1994). Diagnosis and control of *Brucella melitensis*. 4th Annual Report, *Trinational (Egypt-Israel-US) Animal Health Research Project (TAHRP)*.

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Cetinkaya, B. and Öngör, C. H. (2000). Evaluation of ImmunoComb® in comparison with other serological tests in ovine brucellosis, *Veterinary Record*, **147**, pp. 632-4.

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