Product Information (30.10.07)

Name of Kit: **ImmunoComb® Bovine IBR - PI3 - BRSV Antibody Test Kit**

Catalog No: 50BRT103/50BRT130

No of Tests: Standard Size: 30 samples X 3 antigens = 90 Tests

Lab Size: 300 samples X 3 antigens = 900 Tests

Intended Use: The Kit is designed to determine cow serum IgG antibody titer to the viruses associated with Bovine Respiratory Disease (BRD).

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 serum specimen to be tested is diluted in a buffer in the first well of a multi-chamber developing plate. The test spots on the Comb are then incubated with the sera in the developing plate. Specific IgG antibodies from the specimen, if present, bind to the antigen at the test spot.

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 specimen.

	Specificity	Sensitivity
Infectious Bovine Rhinotracheitis	86.2%	94.6%
Parainfluenza-3	100%	87.5%
Bovine Respiratory Syncytial Virus	66.7%	80.9%

Epidemiology: Bovine Respiratory Disease (BRD), also known as *shipping fever*, is an entity of economic significance to cattle producers. Onset of BRD is typically seen following environmental or management related stresses such as poor nutrition, weaning, shipping, and mixing animals from multiple sources. Infection by certain respiratory viruses however, is thought to be the trigger for the development of BRD. Clinical signs may include inappetance, runny eyes, mild diarrhea, rapid breathing, and soft cough.

Infectious Bovine Rhinotracheitis (IBR) or *red nose* is a widespread viral infection that may cause illness in unvaccinated or unexposed herds or those with lowered immunity. Asymptomatic carriers are known to shed the virus at times of stress.

Parainfluenza-3 virus (PI3) causes relatively mild disease by itself, but can be a severe problem when combined with other viral or bacterial agents.

Bovine respiratory syncytial virus (BRSV) has more recently been recognized as a disease agent in respiratory infections. It is mainly a problem in younger animals.

Preferred Method of Diagnosis: Serology is used to evaluate antibody responses to infection by the viruses associated with BRD. Serologic techniques are also helpful in evaluating the effectiveness of vaccination programs.

Interpretation: The level of antibodies (i.e., antibody titer) is determined according to the intensity of the test color result. Positive and negative control serum samples are included in
the ImmunoComb® Bovine IBR-PI3-BRSV Antibody Test Kit. The negative control consists of non-immune sera and should be read as zero. Specimens with colorless (white) or faint color result (i.e., less than S1) are considered negative.

The positive control spot on the Comb should develop a distinct grey color that is scored S3. The positive control has been calibrated to correspond approximately to 200 ELISA units (0.2 Optical Density). Specimens with identical or darker grey color results (S3 – S5) are considered positive.

Proper evaluation of the humoral immune response to infection is performed by comparing test results in paired serum samples, which are obtained at the acute and convalescent stages of illness. Negative serology would be expected to be found in unvaccinated and unexposed herds. Any seroconversion (S1 or greater) would indicate infection, while S3 or greater is considered significant in previously vaccinated animals.

Applications:

1. To determine IBR, PI3, BRSV infection in cattle by measuring IgG antibody titer.
2. To evaluate passive (maternal) antibody levels in calves to these agents.
3. To evaluate humoral immunity status of herds for assistance in designing vaccination programs for prevention of Bovine Respiratory Disease.

References:

Cumin, J. and Whittier, D. (2000). Recognition and treatment of Bovine Respiratory Disease Complex. *Virginia-Maryland Regional College of Veterinary Medicine, Virginia Tech. Publication Number 400-008*, **August**.

Peters, A., R. (1987). Vaccines for respiratory disease in cattle. *Vaccine*, **5(3)**, 164.

Tittle, D. (2000). A quantitative measure of the concentration of immunoglobulin G1, and antibodies to Infectious Bovine Rhinotracheitid, Parainfluenza 3 and Bovine Respiratory Syncytial Viruses in bovine colostrum and post-suck calf sera. *Farm Animal Elective Project: Royal Veterinary College, University of London, England.*