Product Information (25.3.08)

Name of Kit: **Murine ImmunoComb® Antibody Test Kit**

Catalog No: 50MTV103/50MTV130

No of Tests: 90/900

Intended Use: Murine ImmunoComb® *Mycoplasma pulmonis* - Rodent Coronavirus - Sendai virus IgG Antibody Test Kit is intended to assist with health serosurveillance program. Lab subjects (rodents) need to be Specific-Pathogen-Free (SPF) in order to prevent faulty research results. Thus this serological assay allows routinely monitoring for viral adventitious infections that keeps the lab subjects disease-free.

The agents that are being tested for:

Mycoplasma pulmonis	(MPUL)
Rodent Coronavirus	
Sendai virus	(SEND)

Importance and Advantages of Serosurveillance: Even in the absence of disease, adventitious (i.e. accidental) viral infections of Specific-Pathogen-Free (SPF) laboratory animals have been shown to interfere with research by distorting the biological responses that depended on infected host cells and by contaminating biologic reagents and products. Serology is the principal diagnostic methodology by which SPF rodents are routinely monitored, for adventitious viral infections. The reasons for this are that serologic immunoassays are comparatively inexpensive and simple to perform; they are accurate because seroconversion occurs soon after infection and serum antibodies often persist for life. Serology is efficient since a single specimen of serum can be tested for antibodies to a panel of viruses.

Diagnostic Method: The ImmunoComb® test is based on solid phase "dot"-ELISA technology. Antigens are applied to test 'spots' on the solid phase, which is a comb-shaped plastic card. The Comb has 12 teeth - sufficient for 12 samples.

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 sample 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 antigens spots. In the next step, the Comb is allowed to react with an anti-mouse 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.

Sendai virus and rodent coronaviruses are among the most prevalent pathogens of laboratory mice and rats. Sendai virus is a parainfluenza type-1 virus that causes pneumonia; disease can be lethal, particularly in immunodeficient athymic nude and infant mice, and in susceptible strains of inbred mice.

Rodent coronaviruses include rat coronavirus (RCV), sialodacryoadenitis virus (SDAV) in rats, and mouse hepatitis viruses (MHV). RCV and SDAV spread from the respiratory tract to the lacrimal and salivary glands with SDAV causing such signs as cervical swelling, photophobia, and ocular discharge. Depending on the virus strain, host susceptibility and other factors, MHV primarily infects the respiratory or intestinal tract and can disseminate to the liver, brain, and lymphoreticular system.

In addition to overt disease, Sendai virus, coronaviruses and other indigenous rodent viruses cause subtle physiologic, metabolic and immunologic changes that mislead researchers and alter findings. It is therefore essential that research animals be routinely monitored for viral infections.

Natural Sendai and coronavirus infections of immunocompetent rodents are often inapparent and short-lived. Within two weeks of infection, anti-viral immune responses develop and virus is no longer evident in the host. However, specific antibodies formed as part of the immune response persist for many months. They may be detected by serologic assays, which are rapid and specific when constructed and performed properly. These assays are preferable to complicated techniques for virus isolation and detection that yield false negative results in recovered animals. They are more reliable than the observation of clinical signs and pathological changes that may be non-specific or inapparent.

Serology for viral antibodies has traditionally involved complement fixation (CF) and hemagglutination inhibition (HAI). During the past decade, however, these have been supplanted by non-radioisotopic solid phase immunoassays, notably the enzyme-linked immunosorbent assay (ELISA). The Sendai and MHV ELISAs are substantially more sensitive than the CF and HAI tests. The

MHV ELISA can detect RCV and SDAV as well as MHV antibodies because of the strong antigenic relationships among rodent coronaviruses.

ELISAs have also been developed to test for murine antibodies to Mycoplasma pulmonis. This agent causes murine respiratory and genital mycoplasmosis, which seriously impair the usefulness of rodents for research purposes. The Mycoplasma pulmonis ELISA also detects antibodies to M. arthritidis, an antigenically-related rodent mycoplasma that causes spontaneous polyarthritis in rats. M. arthritidis infections have also been demonstrated in mice.

The Murine ImmunoComb® Mycoplasma pulmonis-Rodent Coronavirus-Sendai virus Test Kit is a convenient new modification of ELISA for routine screening of rodents for viral and mycoplasmal antibodies. The test, from specimen preparation to result development, can be performed outside of the laboratory. The Kit is simple to use and contains all the necessary equipment to process the test. Results are obtained within 2.5 hours when dried blood is tested and 90 minutes when serum is used. The test is highly sensitive, permitting the detection of low levels of specific antibodies.

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