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Bovine Leukemia Virus Antibody Test Kit, ELISA

VMRD has developed a highly-sensitive and specific enzyme-linked immunosorbent assay (ELISA) kit which detects antibodies to Bovine Leukemia Virus (BLV) glycoprotein 51 (gp51) in bovine sera. Sample serum antibodies bind to BLV gp51 molecules attached to the plastic wells of the microtiter plate. Binding of these serum antibodies is detected by reaction with horseradish peroxidase (HRP)-labeled affinity-purified goat antibodies to bovine immunoglobulins. Attached HRP-labeled antibodies are detected by addition of enzyme substrate and quantitated by subsequent blue color product development. Strong color development indicates the presence of antibody to BLV gp51 in the sample serum. Very weak or no color development indicates the absence of antibody to BLV gp51 in the sample serum. VMRD's Bovine Leukemia Virus Antibody Test Kit is USDA approved for export testing and is available in breakaway stripwell format. The assay requires that an ELISA reader be used for accurate results.

		Reference ELISA		
		+	-	Sum
VMRD BLV ELISA	+	164	0	164
	-	4*	280	284
Sum		168	280	448

Sensitivity: 98% • Specificity: 100% †§

* All calves less than 8 months of age

†Based on a specific sample set. However, no diagnostic test kit is always 100% specific on all sample populations. Since market introduction of our BLV kit, occasional false positives have been encountered. We therefore advise all users that when BLV prevalence is low, positive samples should be confirmed by some other method, particularly where valuable animals may be involved and/or when BLV status is used as the single criterion for disposition of animals. Whenever import restrictions do not prohibit it, VMRD will provide reference assay service for positives of high-value animals or for positives in low-prevalence situations. We are not capable of testing large numbers of samples, and therefore cannot provide this reference assay service for all positives found.

Data generated by three independent laboratories during field trial testing of VMRD's BLV ELISA as required for USDA licensure, February 1999.

Overview of the VMRD BLV Kit Procedure

1	Dilute serum samples 1:25 with Serum Diluting Buffer
2	Place 50 µl of each sample into wells of the Antigen Plate
3	Incubate 20 minutes at room temperature
4	Wash all wells three times with Wash Solution
5	Add 50 µl of Conjugate to all wells
6	Incubate Conjugate 20 minutes at room temperature
7	Wash all wells three times with Wash Solution
8	Add 50 µl of Substrate Solution to all wells
9	Incubate 20 minutes at room temperature
10	Add 50 µl of Stop Solution to all wells
11	Read at 620-650 nm

All samples with mean OD values greater than or equal to the mean OD of the Positive Controls are positive for BLV. All samples with mean OD values less than the mean of the Positive Controls are negative for BLV.

For test validation, the mean OD of the Negative Controls must be less than 0.200. The mean OD of the Positive Controls must be ≥ 0.250 and < 2.000 .

About Bovine Leukosis

Enzootic Bovine Leukosis (EBL) is an infectious, non-contagious viral disease of cattle. It is caused by Bovine Leukemia Virus (BLV), an oncogenic delta retrovirus, which results in proliferation of B lymphocytes. Infection with BLV may lead to persistent lymphocytosis and in some adult cattle to the development of tumors with associated symptoms. The spread of disease from the introduction into a herd may take enzootic proportions. Transmission of BLV occurs between animals primarily by transfer of B lymphocytes. Trauma, use of common bleeding needles and surgical procedures are the main means of transmission. It is rarely vertically transmitted. Most BLV infections are inapparent. Approximately 5% of animals develop clinical signs. Agar gel immunodiffusion and ELISA tests are used to identify carrier cattle. Control programs for EBL include testing and removal of positive animals. Several European countries which have instituted eradication programs also require that imported cattle be free of BLV.

Bovine Leukemia Virus Antibody Test Kit, ELISA					
Format	Species	Sample	Sensitivity	Specificity	Assay Time
ELISA	cattle	serum	98%	100%	80 minutes

USDA Licensed Product

Catalog No.	Configuration	Tests
284	1 stripwell plate	91
284-5	5 stripwell plates	455