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**Bovine Transferrin ELISA kit
Catalog # F120
Validation Summary
Report dated March 10, 1999**

The data summarized below was generated by *Cygnus Technologies* to establish the performance parameters and validity of this kit to measure bovine transferrin. This data is intended to supplement and not replace user generated validation data. The data is representative of what a laboratory can expect to achieve when following the kit insert recommended protocols. Significant differences in these performance parameters may be indicative of problems with reagents, laboratory equipment, or technique and should be investigated before reporting results.

It is recommended that a user validation study include at least the following experiments to validate this kit for use with their product: (1) Each user should perform intra and inter assay precision experiments to establish their procedural proficiency. (2) Each user should perform recovery experiments using their test sample matrices. Such a study can be performed by adding known amounts of the 32ng/mL standard provided with this kit to the final product or any intermediate samples, which are to be tested. Ideally these test sample matrices should be devoid of any bovine transferrin or have very low levels (<0.5ng/mL) determined prior to adding the 32ng/mL standard. Such an experiment will establish the degree of sample matrix interference in the recovery of bovine transferrin (3) Laboratories should also perform dilutional recovery experiments on their actual samples. This experiment assumes that at least some of the test samples from the purification process will have significant levels of bovine transferrin. Such samples are to be serially diluted by some appropriate diluent previously shown to give acceptable recovery. When diluted, samples should give essentially the same value at each dilution when multiplied by the appropriate dilution factor. This experiment establishes the condition of antibody excess for accurate quantitation and determines that typical process samples do not have bovine transferrin in the "Hook Region" of the concentration response curve.

Materials: Kit Lot 26049

Methods: The protocol as defined in the kit insert was used in this validation.

Data References: Raw data for these experiments are recorded in Notebook#1-bovine transferrin pages 1-6.

Precision: Precision is defined as the percent coefficient of variation (%CV). This is calculated by dividing the standard deviation by the mean value for a number of replicate determinations of two different control samples in the low and high concentration range of the assay. The design goal specifications are given in the last column of each experiment. While actual precision may vary from laboratory to laboratory and technician to technician it is recommended that all operators achieve precision below these design goals before reporting results.

Intra-assay				Inter-assay			
# of tests	Mean ng/mL	%CV	Design Goal Specification	# of assays	Mean ng/mL	%CV	Design Goal Specification
20	0.52	6.2	<10%	5	0.51	6.9	<12%
20	8.1	4.1	<8%	5	7.9	5.6	<10%

Sensitivity: The bovine transferrin concentration corresponding to a signal 2 standard deviations above the mean of the zero standard is defined as the limit of detection (LOD). This was determined from 10 replicates of the zero standard. The mean signal of the zero standard plus 2 SD yielded a LOD of 200 pg/mL. The limit of quantitation (LOQ) is defined as the lowest concentration for which the CV is <20%. This is determined by performing a precision profile for the assay at several low concentration points and then interpolating that concentration which corresponds to a 20% CV. The LOQ was 250 pg/mL.

Specificity: In sandwich ELISA, cross reactivity can manifest itself either as a false increase in bovine transferrin (positive cross reactivity) or as a false decrease in bovine transferrin (negative cross reactivity) when bovine transferrin present in the sample competes with the cross reactant for the kit antibodies. The following materials were tested for cross reactivity at the concentrations indicated both in the absence of bovine transferrin and in the presence of 8ng/mL bovine transferrin. While no cross reactivity was detected in human or mouse transferrin, the holo and apo forms of bovine transferrin did cross react 100%. It is recommended that each user test known materials in their sample matrices for cross reactivity in a similar experiment.

Materials Tested for Cross Reactivity with Bovine Transferrin

Substance	Concentration Tested	% Cross Reactivity
Human transferrin	1 mg/mL	0
Human transferrin	1 ug/mL	0
Mouse transferrin	1mg/mL	0
Mouse serum	1:1000	0
Holo bovine transferrin	8ng/mL	100
Apo bovine transferrin	8ng/mL	100

Hook Capacity: Very high concentrations bovine transferrin were evaluated for the hook effect. At concentrations exceeding 40,000ng/mL, the apparent concentration of bovine transferrin may read less than the 32ng/mL standard. Samples yielding signals above the 32ng/mL standard or suspected of having concentrations in excess of 40,000ng/mL should be assayed diluted.