

Validation Report #029594

Validation Date: 02/08/14

Summary

Antigen	human Alpha-fetoprotein (AFP)
Catalog number	ABIN364989
Supplier	Cusabio
Supplier catalog number	CSB-E04770h
Lot number	U11095946
Method validated	Enzyme-linked immunosorbent assay
Laboratory	Alamo Laboratories Inc
Validation number	29594
Positive Control	Human serum
Negative Control	Goat serum
Notes	Signal was detected in positive control serum and not in negative control serum.



Full Methods

Primary Antibody

- Antigen: Human Alpha-Fetoprotein (AFP)
- Catalog Number: ABIN364989
- Supplier: Cusabio
- Supplier catalog number: CSB-E04770h
- Lot Number: U11095946

Controls

- Positive control: Serum from normal adult human (specimen known to contain the target protein).
- Negative control: Serum from normal goat (specimens known to not contain the target protein).
- Standard curve: Serial two-fold dilutions from 100 ng/ml [100, 50, 25, 12.5, 6.25, 3.13, 1.56, 0] were generated from the standard provided in the kit using standard/sample diluent buffer.
- Spike control: Standard diluted in standard/PBS diluent buffer [12.5 and 0].

Protocol

- All reagents in the ELISA kit were brought up to room temperature (RT) before use.
- 100 μ L of standard or sample were added to wells in ELISA plate pre-coated with capture antibody. All samples and standards were assayed in triplicate.
- The plate was covered with sealer (provided in kit) and incubated for 30 min at 37°C. Unbound material was aspirated and plate was washed three times with 350 μ L of wash buffer (provided in the kit). After the last wash the plate was inverted against clean absorbent paper to remove any remaining liquid.
- 100 μ L of HRP-Antibody Conjugate (diluted 1:100 in "HRP-conjugate Diluent") was added to each well. Plate was covered with sealer (provided in kit) and incubated for 30 min at 37°C.
- Unbound HRP-Antibody Conjugate was removed by washing five times with 350 μ L of wash buffer (provided in the kit). After the last wash the plate was inverted and blotted against clean absorbent paper to remove any remaining liquid.
- 90 μ L of TMB substrate was added to wells and the plate was covered with a new plate sealer. The plate was gently tapped to ensure mixing and incubated for 20 min at 37°C in the dark.
- After 20 min, when an apparent gradient appeared in the standard wells, the reaction was terminated by adding 50 μ L of Stop Solution to each well.
- The optical density (OD value) of each well was read using a microplate reader set to 450 nm.
- The triplicate readings for each sample were averaged and the average zero standard optical density subtracted to yield 'corrected absorbance at 450 nm'. A standard curve was generated by plotting the mean OD value for each standard on the X-axis against the concentration on the Y-axis using Excel. Standard curve was generated by regression analysis with four-parameter logistic.
- An equation ($y = 38.734x^4 - 18.467x^3 + 7.8647x^2 + 78.551x$) was derived from the standard curve and used to calculate Alpha-fetoprotein concentrations in samples based on their Average Absorbance values.

Experimental Notes

None

Figures

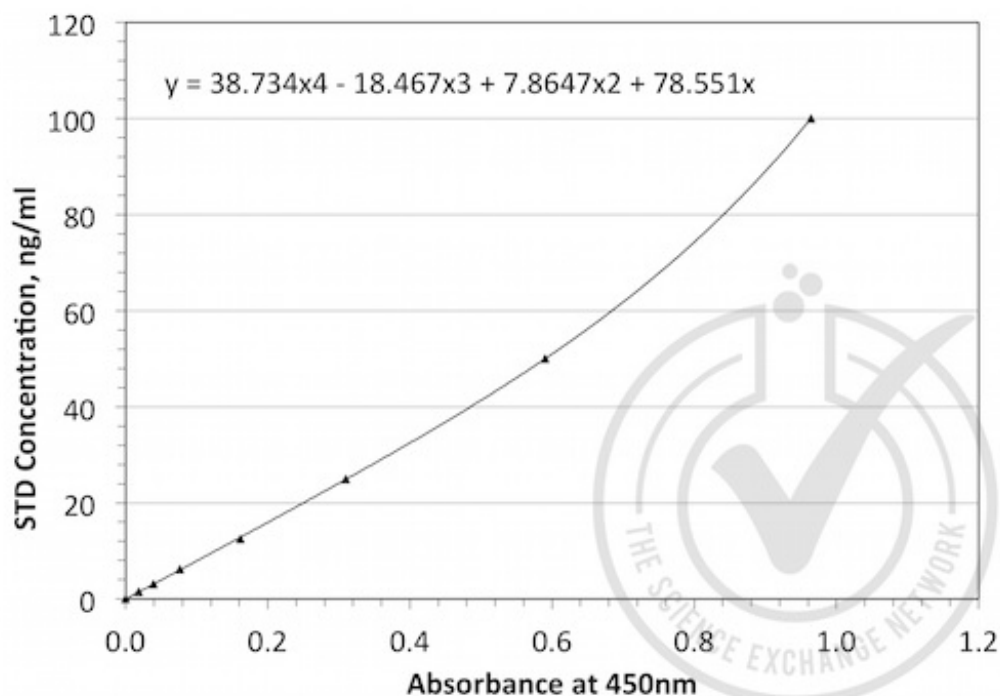


Figure 1: Graph of corrected OD450 nm plotted for standard curve samples.

Type	Sample, ng/ml	Readings at 450 nm			Avg Reading	Corrected OD _{450nm}	SD	Calculated conc ng/ml
		1	2	3				
Standards	100	1.052	1.082	0.978	1.037	0.964	0.044	100.00
	50	0.652	0.688	0.650	0.663	0.590	0.017	50.02
	25	0.382	0.402	0.364	0.383	0.310	0.016	24.89
	12.5	0.231	0.236	0.235	0.234	0.161	0.002	12.80
	6.25	0.149	0.151	0.147	0.149	0.076	0.002	6.01
	3.12	0.111	0.119	0.107	0.112	0.039	0.005	3.10
	1.56	0.090	0.093	0.090	0.091	0.018	0.001	1.42
	0	0.077	0.071	0.071	0.073	0.000	0.003	0.00
Spike Controls	12.50	0.262	0.218	0.218	0.233	0.160	0.021	12.69
	0.00	0.074	0.070	0.074	0.073	0.000	0.002	-0.03
Test Samples	Serum, Human	0.137	0.146	0.139	0.141	0.068	0.004	5.33
	Serum, Goat	0.071	0.077	0.065	0.071	-0.002	0.005	-0.16

Conc of Alpha-Fetoprotein in Human Serum (+ ve Control) : 5.33 ng/ml

Conc of Alpha-Fetoprotein in Goat Serum (-ve Control) : - 0.16 ng/ml

Table 1: ELISA. Alpha-fetoprotein is present in Human serum and undetectable in goat serum. Spike controls indicate no interference in absorbance readings from the diluent used to prepare standards and sera samples. Absorbance readings (OD450 nm) are shown for standard curve, spike controls and unknown samples. Value for Avg Reading is derived from the average reading of three samples. Avg Reading for "0" amount of Standard was subtracted from all Avg Readings to yield "Corrected OD450 nm" values for standards, spike controls and unknown samples. Standard deviation is included for all samples. Standard curve was generated by regression analysis with four-parameter logistic. An equation ($y = 38.734x^4 - 18.467x^3 + 7.8647x^2 + 78.551x$) was derived from the standard curve and used to calculate Alpha-fetoprotein concentrations shown in Table 1.